





James M. Marcus Jr.
(aged 21½ yrs!)

Hartford

Conn.

Jan'y 6th 1858. No. 18. State Street

" " " "

1. The first part of the paper is a list of the names of the persons who have been elected to the office of the President of the United States, and the names of the persons who have been elected to the office of the Vice President of the United States.





ETHER AND CHLOROFORM:

THEIR EMPLOYMENT

IN

SURGERY, DENTISTRY, MIDWIFERY,
THERAPEUTICS, ETC.

BY

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TO
JOSIAH F. FLAGG, M.D.,

SURGEON DENTIST,

BOSTON, MASSACHUSETTS.

As I know of no one who will peruse the following pages with greater leniency, or with a more just appreciation of my motive for giving them publicity,—I would therefore respectfully inscribe them to you, with my sincere thanks for the independent course manifested by yourself at the commencement of Ether inhalation in your city.

In the earnest wish for your long-continued health and usefulness, believe me,

Truly your affectionate brother,

J. F. B. FLAGG.

190 Arch Street, Philadelphia.

December, 1850.



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INTRODUCTION.

THE excitement, consequent upon the discovery of the application of sulphuric ether in painful surgical operations, having passed sufficiently away to enable us more calmly to view and understand its real merits, I cannot but feel it a pleasurable duty, on my part, to lay before the community those facts and circumstances in reference to the subject, which my position has enabled me to collect.

In treating upon its history as a discovery, I would here observe, that I have no other interest or feeling in the matter, than what I believe to be a desire to elicit truth; making statements, or repeating such as may have reached me, with no further comment than the case seems absolutely to require; preferring that my readers should draw their deductions, and form conclusions from simple relation, rather than from party prejudice.

It is much to be regretted, that several candidates should have appeared simultaneously for the exclu-

sive honour of having first induced anaesthesia by inhalation; when the part allotted to each in its promulgation, would have been sufficiently meritorious to rank him among the philanthropic of the age. It is equally humiliating that seereey, caveats, and quackery, in various shapes, should ever have been connected with this subject; as they have all tended to bring into disrepute a valuable discovery. The consequent excitement required the utmost candour, the calm exercise of judgment, in short every ennobling trait, to meet the many objections that have been suggested through fear, jealousy, or other wrong motives.

Sufficient time has elapsed, and an amount of experience has been gathered throughout the civilized world, to place ether upon that basis which its most sanguine friends claimed for it from the first, as a safe instrument in the hands of prudent men, to secure the abolition of suffering in surgical operations.

Having, from time to time, furnished various articles upon the subject of ether, for the purpose of giving information relative to many of its peculiarities, as well as to remove deep-rooted prejudice, it has been my object to collect and embody in this work, most of those writings, and to arrange them, with cases cited, as may serve to illustrate its use-

fulness in general; and if possible, to gain for it that attention which the subject demands at the hands of the medical world.

It would seem officious (in the odious acceptation of the word) in me, to introduce a chapter in this work in relation to the use of ether in cases of parturition, were it not that I have been much importuned in this matter. The knowledge that it has been very extensively and happily used in midwifery all over Europe, is fast gaining ground in this country; and I see no good reason why the ladies of America should be made any longer an exception to its benefits; and, what is more to the purpose, they are beginning to see the same thing. My opinion, advice, and directions, are daily sought in this department; and duties and responsibilities have been forced upon me, which at least should have been shared with me, if not altogether taken off my hands, by those engaged in its practice. This brief statement of facts must be my apology.

The great variety of constitutional habits, disease in its various conditions, mental organization, &c., wherein ether has been used simply for the purpose of annulling pain in the extraction of a tooth, and from which immediate and permanent benefits have been the result, having occupied much of my attention, as to its importance as a remedial agent, I

have confined my remarks in this department to those mostly of a suggestive character; instancing such cases as I have had opportunities of seeing carried out, and giving them, with the hope that the good already derived may not end with their recital.

In conclusion, I beg here to acknowledge my high appreciation of that confidence manifested in me, and in the course I have pursued in this matter, by many of the professors in our medical schools, and other gentlemen of scientific attainments, who are also more desirous of adopting the use of any agent calculated to relieve human sufferings, than to allow themselves to be actuated by any other than prudent and philanthropic motives. Many, who have been deterred from the use of ether in their practice through timidity alone, are now yielding to its influence *slowly* but *surely*. The thanks of these gentlemen for my continued advocacy in the cause, are now more than compensating me for those injuries inflicted by former ungenerous and disrespectful remarks; in many instances, not stopping short of personal abuse. Others, again, are fast being led into the ranks of its advocates from *necessity*; finding the demand of their patients more urgent than their willingness to comply, and a correspondent depreciation in their practice as a consequence; a motive, as little creditable as that which led them

to oppose it. This applies very particularly to the department of midwifery, and to a certain extent in dentistry; instances of which, I shall have occasion to advert to in another place.

My time has been so much occupied in calming the fears of nearly all who present themselves for etherization, and in relating incidents of former similar cases to secure their confidence, that I hope my motive for appearing before the public in the character of an author will be charitably estimated. By my endeavour to afford both useful information and amusement in this form, I trust those unpleasant duties will be materially lessened.

The communications of my medical friends will assist materially in calming these fears, and, I doubt not, will be read with much pleasure. To these gentlemen I tender my warmest thanks for their prompt assistance in this cause.



ETHER AND CHLOROFORM.

OXIDE OF ETHYL, OR ETHER.

COMMONLY CALLED SULPHURIC ETHER, FROM THE MODE
OF PREPARING IT.

THE following description of this article is taken from "Graham's Elements of Chemistry."

"Ether is the product of a remarkable decomposition of alcohol by sulphuric, phosphoric, and arsenic acids, and is also formed by the action upon alcohol of the fluoride of boron, the chloride of zinc, the chloride of tin, and some other chlorides. All these agents have a great affinity for water, and might be supposed to convert alcohol into ether, by simply combining with the water which the former is supposed to contain; but the close examination which the process of etherification has received from chemists, proves that its rationale is by no means so simple.

"Ether is evolved when alcohol and oil of vitriol are heated together, and may be obtained by mixing and distilling in a glass retort equal weights of these materials, due attention being paid to the condensation of the product, which is volatile, by keeping the receiver

very cold. But as the power of the acid to decompose alcohol is not exhausted in this process, it is found advantageous to make additions of alcohol to the remaining acid, or to introduce the latter in a continued stream. The following is a *continuous process* for ether, first proposed by M. Mitscherlich, as it is given by M. Liebig. Alcohol is employed of density 0.822, or of 90 per cent., which may be obtained by digesting proof spirits upon an equal weight of well-dried carbonate of potash (free from caustic potash), when two liquids are formed, the upper alcohol, of the strength mentioned, which may be drawn off for use, and the lower, a solution of carbonate of potash in water. Five parts, by weight, of this alcohol are mixed with nine parts of oil of vitriol, in a copper or cast iron vessel, surrounded by cold water, and the mixture afterwards introduced into a tubulated glass retort, which the mixture should fill one half, or even a little more. The distillation is best conducted by the heat of a sand-pot, in which the retort should not be deeply sunk, and commenced at a gentle heat; when the temperature increases too briskly, the fire should be withdrawn. A glass tube is fixed by a cork in the tubulure of the retort, of which the extremity within the retort is drawn out into a point, having an opening about one line in diameter, and dips one inch in the liquid. Without the retort, the same tube is bent at a right angle, and may extend horizontally for two or three feet; it communicates with a reservoir of alcohol by means of a metallic tube and stop-cock, by which the flow of the alcohol is regulated. The latter should be supplied so as to keep the liquid in the retort at its original level, at which a mark should be

placed for that purpose. To condense the ether, which distils over, the beak of the retort is connected with Liebig's tube condenser, charged with the coldest water. A leaden alembic is used when ether is prepared on a large scale. It is said that when the operation is well directed, nothing is formed but ether and water: the same sulphuric acid may also be used indefinitely for the preparation of ether without sensibly diminishing, the ether and water, into which the alcohol is resolved, coming off entirely, and leaving none of its elements with the acid.

“To obtain the ether perfectly free from alcohol and other impurities, the crude product may be mixed with some milk of lime, and an equal volume of water, the lighter liquid drawn off, and allowed to digest for several days upon chloride of calcium, or quick lime; and finally be rectified from the same substances. The last product has a specific gravity between 0·720 and 0·725.”

It will thus be seen, that but a few years since, ether was considered perfectly pure when its weight was about three quarters that of water. But since its discovery as an anæsthetic agent, it has been the custom further to wash it of its impurities, by which means it is reduced to but little more than half the weight of water; while its vapour is between twice and three times as heavy as atmospheric air. According to Gay-Lussac, its density is 2·586.

CHLOROFORM.

ITS CHEMICAL CONSTITUTION.

As this new agent, intended to take the place of sulphuric ether, will probably continue to be used to a considerable extent, notwithstanding several cases of fatality have attended its use, I am desirous of furnishing my readers with some account of its chemical nature and properties. Much research and labour are saved to me by quoting from Prof. Simpson's admirable work on this subject. It gives me pleasure that I shall frequently have occasion hereafter to introduce that gentleman, the more perfectly to enforce conviction as to the vast importance of this pain-annulling discovery.

"Formyle is the hypothetical radical of formic acid. In the red ant (*Formica rufa*), formic acid was first discovered, and hence its name. Gehlen pointed it out as a peculiar acid; and it was afterwards first artificially prepared by Doebereiner. Chemists have now devised a variety of processes by which formic acid may be obtained from starch, sugar, and, indeed, most other vegetable substances.

"A series of chlorides of formyle are produced, when chlorine and the hypochlorites are brought to act on the chloride, oxide, and hydrated oxide of methyle

(pyroxylic or wood spirit). In the same way as formic acid may be artificially procured from substances which do not contain formyle ready formed, so also are the chlorides of this radical capable of being procured from substances which do not originally contain it.

“Chloroform, chloroformyle, or the perchloride of formyle, may be made and obtained artificially by various processes, as by making milk of lime, or an aqueous solution of caustic alkali, act upon chloral, by distilling alcohol, pyroxylic spirit, or acetone, with chloride of lime, by leading a stream of chlorine gas into a solution of caustic potass in spirit of wine, &c. The preparation which I have employed was made according to the following formula of Dumas.

R.	Chloride of lime in powder,	-		℔iv.
	Water,	-	-	℔xii.
	Rectified spirit,	-	-	f℥xii.

“Mix in a capacious retort or still, and distil as long as a dense liquid, which sinks in the water with which it comes over, is produced. (*Gray's Supplement to the Pharmacopœia*, 1846, p. 633.)

“The resulting perchloride of formyle consists of two atoms of carbon, one of hydrogen, and three of chlorine. Its specific gravity is much greater than that of water, being as high as 1.480. It boils at 141°. The density of its vapour is 4.2. It is not inflammable; nor changed by distillation with potassium, potash, sulphuric or other acids.”

We are indebted conjointly to Liebig, Guthrie, and Soubeiran, for the discovery of chloroform, and, singular

as it may seem, without any concert of action between these gentlemen. It appears that Dr. Samuel Guthrie, late of Sacketts Harbour, N. Y., published an account of its therapeutical effects, and method of obtaining it, in January, 1832; but to Prof. Simpson, belongs the credit of first demonstrating its effects by inhalation.

ETHER.

REVIEW OF THE HISTORY OF ITS INHALATION.

ABOUT the commencement of the present century, it was discovered that the inhalation of sulphuric ether was attended by effects similar to those induced by the nitrous oxide, commonly called the *laughing gas*. It was much resorted to at that time, and has frequently been used since for the purposes of amusement, and "the development of character." For nearly half a century it was considered sufficiently harmless to be freely used as a substitute for the nitrous oxide, and, so far as my knowledge extends, without any greater evil resulting from its use, than leading to a desire for a too frequent or excessive indulgence therein, tending, in a few instances, to induce diseases somewhat similar to those which result from inordinate alcoholic drinks. Momentary or temporary mischief, indeed, occasionally occurred through excitement (not always unattended by design), such as dealing a blow upon the person of an unpopular professor, or upsetting some unlucky, meddling classmate. Very seldom did anything like injury occur to individuals under its influence, or violence to their immediate friends. A partial etherization, or its intoxicating stage, has emboldened many

young men to vent their petty spleen upon the objects of their dislike, when true courage could never have been aroused by any other means. This, I presume, is what is meant by its *developing character*.

It had frequently been observed, that while under the influence of ether for the above-mentioned purposes, whatever bodily injury was sustained at the time, was as invariably unattended by consciousness of pain. For instance, if the inhalation was carried to such an extent as to disqualify the person from distinguishing between an individual and a post or tree, a blow would quite likely be levelled against one of these latter substitutes of sufficient force to mutilate the hand; and the person thus suffering has always been the last, among those assembled, to be conscious of the fact. The only reason why this peculiar feature in ether inhalation was not made available for surgical operations at an earlier date, was the desire of inducing *perfect quiet* on the part of the patient, rather than *excitement*. Its narcotic influence, through excess of excitement, or the previous condition of mind, had never been considered; and it was left to rude experiment, through the suggestion of fear, rather than to philosophical reasoning, to establish this greatest blessing to suffering humanity.

Fifty years ago, whilst experimenting upon the effects of various gases and vapours upon the lungs, it was suggested by Sir Humphry Davy, that it was possible some agent might be discovered for inhalation, whereby all pain in surgical operations should be abrogated. Even this *thought*, this remarkable hint, had nothing to do with its ultimate discovery. To the ever-

lasting disgrace of science, with all its means for experiment and observation, with all the hints and practical demonstrations afforded it, this discovery, as such, can never take rank above a simple *Yankee guess*.

Dr. Simpson has furnished a very interesting paper, in which he shows that ether was known in the 13th and 14th centuries. That its formation was described in the 16th century by Valerius Cordus; and that it was first designated "Ether," by Frobenius, in 1730. It also appears that the *idea of painless operations* is of very ancient date,—a remarkable receipt for which being given as early as the 13th century, in the surgical treatise of Theodoric, described as "*Spongia Somnifera*."

It appears, from well-substantiated documents, that in the year 1844, Mr. Horace Wells, of Hartford, Conn., a dentist by profession, becoming seriously troubled with an aching tooth, conceived the idea of placing himself under the influence of nitrous oxide gas, while submitting to its extraction. The experiment succeeded far beyond his expectations, he feeling no pain whatever in the operation. Mr. Wells immediately made known his discovery to many friends in that city, operating upon quite a number with equally happy results. He, by advice, soon visited New York, where he was told that sulphuric ether would have precisely the same effect as the article he was using. He used the ether in one or two cases, and preferred it for the reason that no labour was necessary in its preparation for immediate use. But, upon returning to Hartford, he was persuaded to abandon the ether; his medi-

cal friends entertaining some doubts as to its perfect safety.*

In the fall or winter of that year, Mr. Wells visited Boston for the purpose of calling the attention of medical men in that city to the importance of his discovery. He so far succeeded as to obtain a hearing before the medical class then attending lectures; and, it appears, induced Dr. Warren to allow him to administer the nitrous oxide to a patient, who was about to undergo some important surgical operation. In this case, some delay occurring, through excitement or oversight on the part of Mr. W., it is stated that Dr. Warren became impatient, and proceeded in the operation without its use.

Previously to Mr. Wells establishing himself in Hartford, he had practised as a dentist in Boston, and while in this latter city, a young man by the name of Morton entered his office as his pupil. In a short time their names appeared together as joint partners (Wells & Morton), but soon after this Mr. Wells retired, and left the business in the hands of Mr. Morton. As the story goes, Mr. M. hired his office of Dr. C. T. Jaek-

* The "Dispensatory," in speaking of the uses of this ether, says its effects (when inhaled) are similar to the nitrous oxide, but "*dangerous if carried too far.*" It is said that the young men of one of our Eastern colleges became very much in the habit of using the ether, to the great annoyance of some of the faculty. One day, as one of the professors was in the city, the following ruse suggested itself. He called upon an eminent physician, and obtained from him a written statement, to the effect that the inhaling of sulphuric ether was "*dangerous, if carried too far.*" This being read to the students, had its desired effect. The learned physician, unquestionably, would have said the same thing of a joke.

son, and occasionally saw Dr. J. at his laboratory. Mr. Wells informs us, that upon his visit to Boston, on the occasion above alluded to, he saw both these gentlemen (Dr. Jackson and Mr. Morton), and that they discouraged his proceeding in this *inhaling matter* any further, denominating it "A HUMBUG!" No one of sufficient influence could be found in Boston to extend to Mr. Wells a helping hand on this occasion, in this his most excited moment. He returned to Hartford immediately,—baffled, dejected, and almost heart-broken. The reaction threw him upon a bed of sickness, which lasted some months. At length he recovered, and resumed his business, trusting to his success in his private practice for the eventual reputation of *anæsthesia*.

During the summer, or early in the fall of 1846 (nearly two years after Mr. W.'s visit to Boston), the public are startled by the announcement of the most wonderful discovery of the age. The surgeons of Massachusetts General Hospital, together with a few initiated, become astonishingly fervent in their praises of an "INVENTION," which required the combined efforts of scientific attainments and mechanical skill to develope. Classical erudition came to their aid, and, for a season, good, old "sulphuric ether" was made to succumb to the name of "LETHEON."

A circular is broadly cast through the length and breadth of the country, announcing that "*a compound*" has been discovered, which, by breathing into the lungs, induces so deep a slumber as to enable us to perform the most painful surgical operations with entire unconsciousness on the part of the patient. In connection with

this announcement, are the names of Dr. Jackson and Mr. Morton, as its *combined* [?] discoverers.

A patent is sought, and under the protection of a caveat, agents are appointed to traverse the country, selling to all, *who will buy*, the right to use the "*compound*." Thus qualifying everybody and anybody in the use of this powerful agent that would pay the sum of—

" In cities over 150,000 inhabitants, .	\$200 for seven years.
" " " 50,000 and less than	
150,000, . . .	150 " "

And so on, down to—

" In cities under 5,000 . . .	\$37 for seven years.
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Accompanying this circular, is a quotation from a paper read before the Boston Society of Medical Improvement, Nov. 9th, 1846, by Dr. H. J. Bigelow, one of the surgeons of the Massachusetts General Hospital. As this paper is published in full in the number for the 18th November of "the Boston Medical and Surgical Journal," I will extract only that portion which pertains to ether inhalation, and *inhalers* in general, for the purpose of contrasting that scientific dissertation with the present known facts upon the subject. Surely other things beside ether serve to "develop character."

Dr. Bigelow says (p. 309); "I subsequently undertook a number of experiments, with the view of ascertaining the nature of this new agent, and shall briefly state them, and also give some notice of the previous knowledge which existed of the use of the substances I employed.

“The first experiment was with sulphuric ether, the odour of which was readily recognised in the preparation employed by Dr. Morton. Ether inhaled in vapour is well known to produce symptoms similar to those produced by the nitrous oxide. In my own former experience, the exhilaration has been quite as great, though perhaps less pleasurable, than that of this gas, or of the Egyptian *haschish*. It seemed probable that the ether might be so long inhaled as to produce excessive inebriation and insensibility; but in several experiments the exhilaration was so considerable that the subject became uncontrollable, and refused to inspire through the apparatus. Experiments were next made with the oil of wine (ethercal oil). This is well known to be an ingredient in the preparation known as Hoffman’s anodyne, which also contains alcohol, and this was accordingly employed. Its effects upon the three or four subjects who tried it were singularly opposite to those of the ether alone. The patient was tranquillized, and generally lost all inclination to speak or move. Sensation was partially paralysed, though it was remarkable that consciousness was always clear, the patient desiring to be pricked or pinched, with a view to ascertain how far sensibility was lost. A much larger proportion of oil of wine, and also chloric ether, with and without alcohol, were tried with no better effect.

“It may be interesting to know how far medical inhalation has been previously employed. Medicated inhalation has been often directed to the amelioration of various pulmonary affections with indifferent success. Instruments called *inhalers* were employed long ago by Mudge, Gairdner, and Darwin, and the apparatus fitted

up by Dr. Beddoes and Mr. James Watt for respiring various gases, has given birth to some octavo volumes. More recently, Sir Charles Scudamore has advocated the inhalation of iodine and conium in phthisis, and the vapour of tar has been often inhaled in the same disease. The effects of stramonium, thus administered, have been noticed by Sigmarid.

“ *The inhalation of the ethers* has been recommended in various maladies, among which may be mentioned phthisis and asthma. ‘On sait que la respiration de l’ether sulfurique calme souvent les accidents nerveux de certains croups,’ is from the Dict. des Sc. Méd.; but I find that mention of the inhalation of this agent is usually coupled with a caution against its abuse, grounded apparently upon two or three cases, quoted and requoted. Of these the first is from Brand’s Journal of Science, where it is thus reported: ‘By imprudent respiration of sulphuric ether, a gentleman was thrown into a very lethargic state, which continued from one to three hours, with occasional intermissions and great depression of spirits, the pulse being, for many days, so low that considerable fears were entertained for his life.’ Christison quotes the following from the Midland Medical and Surgical Journal, to prove that *nitric* ether in vapour is a dangerous poison when too freely and too long inhaled:—‘A druggist’s maid-servant was found one morning dead in bed, and death had evidently arisen from the air of her apartment having been accidentally loaded with vapour of nitric ether, from the breaking of a three-gallon jar of the Spiritus Æth. Nitric. She was found lying on her side, with her arms folded across her

chest, the countenance and posture composed, and the whole appearance like a person in a deep sleep. The stomach was red internally, and the lungs were gorged." The editor of the Journal where this case is related, says he is acquainted with a similar instance, where a young man was found completely insensible from breathing air loaded with *sulphuric ether*, remained apoplectic for some hours, and would undoubtedly have perished, had he not been discovered and removed in time. Ether is now very commonly administered *internally* as a diffusible stimulant and antispasmodic, in a dose of one or two drachms. But here also we have the evidence of a few experiments that ether is capable of producing grave results under certain circumstances. Orfila killed a dog by confining a small quantity in the stomach by means of a ligature around the œsophagus. Jager found that Zss. acted as a fatal poison to a crane. It was for a long time supposed to be injurious to the animal economy. The old Edinburgh Dispensatory, republished here in 1816, explicitly states that it is to be inhaled by holding in the mouth a piece of sugar containing a few drops, and also that regular practitioners give only a few drops for a dose; 'though,' it adds, 'empirics have sometimes ventured upon much larger quantities, and with incredible benefit,' p. 566. Nevertheless, it was known to have been taken in correspondingly large doses with impunity. The chemist Bucquet, who died of scirrhus of the colon, with inflammation of the stomach and intestines, took before his death a pint of ether daily, to alleviate his excruciating pains (he also took 100 grs. of opium daily); and Christison mentions an old gentleman who consumed

for many years \S xvi. every eight or ten days. Such facts probably led Merat and De Lens, in their *Matière Médicale*, to question its grave effects when swallowed. Mentioning the case of Buequet, they say, even of its inhalation, that it produces only ‘un sentiment de fraîcheur que suit bientôt une légère excitation.’

“This variety of evidence tends to show that the knowledge of its effects, especially those of its inhalation, was of uncertain character. Anthony Todd Thomson well sums up what I conceive to have been the state of knowledge at the time upon this subject, in his *London Dispensatory* of 1818. ‘As an antispasmodic, it relieves the paroxysm of spasmodic asthma, whether it be taken into the stomach, or its vapour only be inhaled into the lungs. Much caution, however, is required in inhaling the vapour of ether, as the imprudent inspiration of it has produced lethargic and apoplectic symptoms.’ In his *Materia Medica and Therapeutics*, of 1832, however, omitting all mention of inhalation, he uses the following words: ‘Like other diffusible excitants, its effects are rapidly propagated over the system, and soon dissipated. From its volatile nature its exciting influence is probably augmented; as it produces distension of the stomach and bowels, and is thus applied to every portion of their sensitive surface. It is also probable that it is absorbed in its state of vapour, and is therefore directly applied to the nervous centres. It is the diffusible nature of the stimulus of ether which renders it so well adapted for causing sudden excitement, and producing immediate results. Its effects, however, so soon disappear, that the dose requires to be frequently repeated.’

“Nothing is here said of inhalation, and we may fairly infer that the process had so fallen into disrepute, or was deemed to be attended with such danger, as to render a notice of it superfluous in a work treating, in 1832, of therapeutics.”

The paper from which the above is quoted, as a whole, is one of much interest, and would have reflected infinitely more credit upon its author *had sulphuric ether not been the “new agent.”*

Very soon after the *caveat* had been secured, a rupture occurred between these two professed discoverers, which has led to a vast amount of controversy, much bitter feeling, and some truth. They each deny that any credit belongs to the other. This is true to a very considerable extent; but I hope to show, in as brief a manner as possible, that the world is really under obligations to them both, for the sudden and simultaneous adoption of ether in surgical practice in all civilized countries.

The known reputation of Dr. Jackson as a scientific chemist, carried with it much force when the assurance came from him that pure washed sulphuric ether was innocuous (in view of a healthy condition), when taken into the lungs sufficiently to induce narcotism.

The bold experiments of Mr. Morton, even to the shutting off or partial exclusion of atmospheric air, and the holding of a burning candle within a few inches of the mouth of a patient while under its influence, are certainly worthy of much consideration. They serve at least to imbue us with additional confidence in its safety, when used in a prudent, careful, and proper manner.

There is so much that is disagreeable to dwell upon

in the contest which was carried on between the parties, professedly friendly to the various claimants for discovery in this matter, for more than a year, that I feel anxious to draw this part of ether history to a rapid close, and only desire to state what seems to me the most rational conclusion as to its discovery:—

1. To Sir Humphry Davy unquestionably belongs the credit of first suggesting the idea of inhaling into the lungs *some* agent which would deaden sensibility during painful surgical operations.

2. To Mr. Horace Wells of Hartford (now deceased), as unquestionably belongs the merit of having first *demonstrated* this happy idea, by using both nitrous oxide and sulphuric ether for this purpose.

3. To Dr. Charles T. Jackson, of Boston, the thanks of the world are due for lending that influence which his well-earned reputation so admirably qualified him to do, in establishing confidence in the public mind in the use of sulphuric ether, as a substitute for the nitrous oxide; and

4. To Dr. W. T. G. Morton, dentist, of Boston, we are under obligations, for his indefatigable exertions in securing the attention of leading medical men to this subject; and thus rapidly expediting the use of sulphuric ether in connection with the practice of surgery.

Within ten days of the appearance of the article before referred to (Dr. Bigelow's), it was understood that sulphuric ether was the principal, if not the only ingredient, used in the cases reported by him. Accordingly, experiments were performed with that material in my office on the evening of Nov. 28th, 1846, Drs. Bond, Roper, and Dillingham being present. The effects upon

most of those who inhaled it on that occasion, will be seen under an appropriate head in another part of this work. On the following day I used it in my practice, and have continued to do so ever since.

The excitement occasioned by the introduction of ether inhalation for the period of two or three years, was, perhaps, as great as that attending the earlier practice of vaccination, though, as yet, I have heard of no one being actually *stoned* for resorting to its use. Whilst one portion of the medical and scientific world were extolling its merits with unbounded praise, others, equally learned, were most actively engaged in condemning it, for reasons which I will proceed to show.

1. The *prudent* saw the liability to abuse, in the *wholesale* manner in which it was likely to be used by a large class of men, totally unqualified to administer it. This was a motive for its opposition, not only creditable to the foresight of such as assumed this position, but it has had a most salutary effect in confining its use to its legitimate limits.

2. The *timid* have been uncompromising in their opposition to ether, through imaginary evils that were constantly about to occur; fears that have never been realized, not even slightly, except by gross abuse, and in no one instance attended by fatality! The effect of this timidity on the part of those who should have ranked among the pioneers in this cause, has been to influence a large portion of the community with the same sentiment. The unpleasant effects of the ether under these circumstances, will be shown in another place.

3. *Religious scruples* have had their influence in

opposing this heaven-sent agent. This objection has mostly, however, been confined to its use in obstetric cases. The idea that God desires us to suffer bodily pain under certain circumstances, and that it would contravene His will to resort to the use of sulphuric ether, any more than by using other remedial agents, is probably the quickest met, by allowing those to suffer who prefer to suffer; whilst others may find new cause of thankfulness in freely using this blessed gift. This objection will be subsequently considered.

4. *Jealousy* has had a large share in traducing sulphuric ether. *Physicians* have opposed it for the very cogent reason, that it was the discovery of a dentist! *Some* repudiate it, because of its Yankee origin! and *others* condemn it, who feel their incompetency to administer it.

Such have been, and are yet to a considerable extent, the leading objections made and held against ether inhalation. It has been made responsible for its *mal-administration*. Deaths, and less serious injuries, resulting from the use of other agents, particularly chloroform, have been freely attributed to sulphuric ether. Falsehood has been busy with its thousand tongues, and rumour has not unfrequently "amputated the healthy limb, and left the fractured one to recover."

The following case occurred in my practice in the earlier part of ether history, which I report, as a fair illustration of the many attempts to bring it into disrepute.—Dec. 29th, 1846. Mr. K. brought to me his son, about 12 years of age, to have a lower molar tooth removed, which had been very troublesome for some time. He took the ether, and with pleasant results.

The third day after the operation a lady informed me, that she had heard the ether had made this lad quite sick. Again that day, some one informed me that such was the case. I replied, "I thought not; as his father would most probably have sent for me, if such was the fact." The next day my friend, Mr. Dillingham, a dentist and near neighbour, called upon me, and stated that he had heard a similar report. I immediately called upon Mr. K., and inquired after the health of his son. He said he had been very sick, but was then better. Upon my asking him if he thought the ether had anything to do with his case, he immediately answered "Oh, no,—it was not the one that took the ether, but another son!"

The excitement that prevailed throughout the summer of 1847, will not soon be forgotten. Ether had been adopted by most of the hospitals of Europe and approved. Soon, statistics went to prove that from 15 to 20 per cent. of human life was saved in capital operations *from its use alone*. Most of the English and French medical periodicals contained little else of interest. Experiments were performed with it in every variety of way, upon all kinds of animals. In short, the ordeal through which ether passed, was rigid in the extreme.

For a period, the subject of ether *inhalers* occupied public attention largely. Much ingenuity was spent upon these articles; but as a general thing, *those that had a valve here, and a stopcock there*, were considered by far the best. It was not long, however, before they ceased to be used altogether, and a simple sponge, or napkin, saturated with ether, became their substitute.

Stripped of its mysteries, and outliving a bad name,

at the close of 1847, ether was acquiring a rapid popularity. Many, it is true, still continued to oppose it, in order to maintain their consistency; but it was evidently hard for these to stem the popular current, as was shown from the position they occupied on the introduction of CHLOROFORM.

In the early part of January, 1848, this new anæsthetic agent made its appearance in Philadelphia. Its application as a substitute for sulphuric ether was discovered by Professor J. Y. Simpson of Edinburgh. Accompanying a formula for its manufacture was a report of several cases out of about *forty* in which Prof. S. had administered it; all of which were attended with favourable symptoms. The first that was used in this city was by myself. After using it in a few cases (one of which was for amputation of the breast), with agreeable results, I published an account approving it, for reasons similar to those set forth by Dr. Simpson. Immediately the cry was loud in its favour,—so much so that no apprehensions as to its safety were expressed in my office by one in ten who took it at my hand.

The part taken by those who had been *consistent* opponents of ether, was amusing at this period. The often-quoted remarks, “*Now* we have an article that is perfectly safe.” “I always said that *ether* would soon be forgotten,” &c., &c., showed too plainly *how* chloroform came to the relief of—*the enemies of anæsthesia*.

What inspired this community with such sudden confidence in the use of chloroform? Had Professor Simpson, of *Edinburgh* (not a professed chemist), such advantages of reputation over Professor Jackson (a chemist), of our own country? Or were some forty or

fifty successful experiments with an article so new and strange, and withal so much more powerful in its nature, sufficient to establish its supremacy over ether, which had been used by so many thousands with perfect impunity? Strange as all this seems it is none the less true, that confidence was placed in chloroform as a plaything, which was denied to ether for useful purposes! How stands the case at present?

Very soon after my adoption of the use of chloroform, I discovered this remarkable peculiarity as one of its most frequent features. What were *premonitory* symptoms in ether inhalation, became *secondary* when chloroform was used. I also had occasion to observe that a large per cent. of my patients made complaints that *never* pertained to the use of ether; and, consequently, I felt it my duty to caution the public, at that time, in regard to it, in an article through the columns of the "City Item." I think this was the first note of alarm that was sounded against chloroform in this country. Soon after this, a case of death was reported as having occurred in Cincinnati from its mal-administration. The public mind received a shock by this announcement which lasted for some weeks. Chloroform was proved to possess the power to kill; and ether, as a matter of course, shared largely in its disgrace. Every unfavourable case that reached us from abroad, where chloroform was the agent employed, was as frequently attributed to ether, and by this means additional causes sprang up to increase the alarm of the timid.

Chloroform has now almost ceased to be used in this section of the country, except to be mixed in very small

proportion with the ether, and, occasionally, by *local application*.—(See chap. on Local Application.)

Anxiety upon the subject of ether was not confined to this country. Idle tales and false alarms circulated as freely in London as in Philadelphia, as an extract from a transatlantic brother will serve to show. The following is from the pen of J. Robinson, Surgeon Dentist, London:—"It is well known that deaths have followed operations in which etherization was employed, and out of the number that have taken place in England, *four* at least have been more or less publicly attributed to the ether. The four cases to which we refer are—a case of lithotomy in one of the London hospitals; a case of amputation in private practice by an eminent London surgeon; a case of lithotomy at Colchester; and a case of the removal of a tumour at Grantham. The subjects of the foregoing cases survived the respective operations about the following periods:—the first, twelve days; the second, three days and a half; the third, more than two days; the fourth, more than one day.

"The most remarkable features of these cases, as reported, appear to be,

"1st. In the Colchester case of lithotomy, the patient recovered from the effects of ether after a short time, and continued in a quiet, passive state, but *without decided reaction*, for twenty-four hours. At this period he had a chill, which lasted for nearly twenty minutes. Not long after this chill, there supervened a state of collapse, from which the patient never rallied, though he lived after it upwards of twenty-four hours. Nothing particular was found in the body on dissection, unless

we consider 'the fluid state of the blood,' and the 'flaccid state of the heart,' as such.

"2d. In the Grantham case (removal of a large malignant tumour from the back of the thigh), the ether did not produce the usual full effect of insensibility. The operation was a severe and long one, lasting fifty-five minutes. When put to bed she appeared conscious—indeed, she seemed quite conscious during the whole time from the operation till her decease. She never rallied, however, after the operation, but lived about twenty-eight hours after it. In this case, also, the blood was found fluid on dissection, and there was some congestion of the brain. There was no other unusual appearance.

"3d. In the case of amputation in private practice, the patient, a gentleman upwards of seventy, was placed under the influence of the ether by an experienced man, and took about the average quantity. He does not, however, seem to have been completely affected by the ether, as he gave signs of pain, and afterwards said he had felt some pain during the operation. He seemed doing pretty well for a time, though never rallying satisfactorily. He, however, lived nearly four days, presenting various anomalous nervous symptoms; among others slight recurrent delirium. The stump did not put on the healthy reparative process.

"4th. In the case of lithotomy in the boy, all the primary effects of the ether passed off as usual; the patient living many days, and dying from the effects of local inflammation, the consequence of the operation. In this case, there is no mention made of fluidity of the blood, in the account of the dissection with which we

have been favoured by the eminent surgeon of the Hospital.

“The question is here put to the candid consideration of all experienced surgeons, whether there is anything in any one of these cases specially different, or in any respect different, from what they have repeatedly seen after severe operations, performed before the employment of ether? In three of the cases we have the ordinary phenomena of ‘shock,’ or ‘sinking,’ varied as it has been ever seen to vary in different cases. In the Grantham case, a most unusually long and severe operation (and in which, by the way, as well as in the case of amputation, it may be fairly questioned if the system was ever fairly under the influence of ether at all), we have scarcely any attempt at rallying, and gradual sinking to death within thirty-six hours. In the case of amputation, we have nothing like immediate sinking, but that anomalous, nervous state, described by Mr. Travers as ‘prostration with excitement,’ eventually ending in death after five days. In the lithotomy case in the boy, we have nothing but what is witnessed every year in every hospital; feeble reaction in a bad subject, followed by unhealthy inflammation and death many days after the operation.”

Here follows a report of twelve cases, where operations had been performed *without* the use of ether, terminating fatally; the symptoms of which were so perfectly in keeping with those previously mentioned, that, without question, had this agent been employed, no other cause would have been thought necessary to account for the sad catastrophe.

The same work shows that, out of eighty-nine cases

in which ovariotomy had been either performed or attempted, thirty-four sunk, or nearly four in every ten cases died.

In 201 amputations of the thigh, 126 died, or 6 in every 10.

“In the Edinburgh Infirmary, during the four years commencing July, 1839, there occurred 72 amputations of the thigh, leg, shoulder-joint, arm, and forearm. Of these 72 patients 37 recovered and 35 died, or nearly 5 in every 10.

“In the many other cases furnished by this valuable report, the evidence, as collected, principally goes to prove that in similar operations, from 4 to 6 in 10 have proved fatal.

“It would appear, on the one hand, we have three cases, out of the many hundreds of etherized patients subjected to capital operations, in which the patients, after the departure of all the peculiar effects or primary symptoms produced by etherization, such as sopor, insensibility, &c., succumbed with a set of other, and equally peculiar secondary symptoms, well known to surgeons;—well known to terminate frequently in death, and, in the cases in question, *presenting not one peculiarity to distinguish them from the old, ordinary cases of ‘sinking from shock.’* On the other side, we have many thousands of instances in which the same process of etherization was had recourse to for slight operations, such as extraction of teeth, or for mere experiment, and in which all the same primary phenomena of etherization were as effectually induced as in the others, and yet, *not one example of the occurrence of the peculiar secondary symptoms referred to, much less any instance*

of death. If, in the fatal cases, the etherization was, in any way, the source of these peculiar symptoms, or the cause of death, is it not most extraordinary that in the other thousands of instances it should not have given rise to some of the symptoms which in these cases preceded death, or even death itself? What was the *sole peculiarity* that existed in the two sets of cases that have relation to the process of etherization? Only the important one, that in the set in which the deaths supervened there was a severe operation, and in the other there was not. Is not the conclusion irresistible that in these fatal cases *it was the operation, not the ether which killed the patients?*''

Great caution has been manifested, particularly in this meridian, in adopting the use of ether, as a general thing, in surgical operations. I, of course, cannot complain of this, knowing, as I do, that a large share of the alarm was naturally produced by the fact that this powerful agent was in the hands of irresponsible men; used by them indiscriminately, without any knowledge of its medical properties, its physical or psychological effects; and without those necessary precautions so requisite to a correct diagnosis. This has been enough of itself to create disgust; but, as the greatest fear has been apprehended from its *primary* effects, such as producing *asphyxia, apoplexy, rupture of the aorta, prolonged insanity from congestion, &c.*, and no such cases have, as yet, been reported, it is really to be hoped that, in future, more confidence will be manifested by the faculty, in its innocence as well as in its usefulness.

In regard to its secondary effects upon the system,

SULPHURIC ETHER.

DIRECTIONS FOR ITS ADMINISTRATION, BY INHALATION,
FOR SURGICAL AND DENTAL OPERATIONS, WITH SUG-
GESTIONS TOUCHING ITS USE IN OBSTETRICS.

I KNOW of no condition wherein the use of this article can be considered as really dangerous, if governed by a knowledge of its effects under all circumstances, and handled with that prudence which should ever be exercised in the use of all powerful agents. Steam may be used with *safety* in a poor boiler, in view of certain considerations, none of which, however, embrace the idea of ignorance or recklessness on the part of the engineer.

Ether, to be inhaled into the lungs, should be very highly rectified, washed free from its acid and alcoholic properties, rendering its specific gravity but little more than half that of distilled water.

No apparatus should be used as an *inhaler* which does not amply provide for the admission of atmospheric air, or that by any means would render the breathing difficult. A good sponge, well and frequently saturated with ether, is probably the best and simplest method of administering it; but a tumbler or cup for the purpose of holding a sponge, has been both convenient and eco-

nomical, particularly when the frequent use of ether is required.

It is well to establish that understanding between yourself and your patients which will secure their most implicit confidence, both in yourself and in the full power of the ether to accomplish the end desired, requiring them to answer any question you may put to them while inhaling, as long as they perfectly comprehend you. By the *manner* in which they answer, you will find one very good guide when to perform the simple operation of extracting one or two teeth. I have found that partial etherization has been preferable in nearly all short operations, and particularly where the co-operation of the patient has been at all desirable.

The pulse should always be consulted. Its general tendency is upward or quickened. When this takes place very rapidly, it is proper to cease giving the ether for a few inhalations, or until reaction takes place, when a repetition of the ether will not unfrequently promote its downward tendency. Under ordinary circumstances I consider it safe to increase a pulse to 160 (one hundred and sixty) beats in the minute; or to suffer it to decrease to 50 (fifty), but of course there must be exceptions to this rule too obvious to need particularizing.

The expression of the countenance and temperature of the head should be observed. When the face becomes suddenly turgid, cold water should be applied to the forehead and temples, suffering the patient to breathe ammonia, or concentrated vinegar, allowing at the same time plenty of fresh air, directing them to take full and rapid inspirations. The variation of the temperature

in view of an operation, we at present only know that a few cases out of many thousands have terminated fatally; and, as reported, "*because no reaction took place!*" Now, this very want of reaction would seem to imply a want of perfect etherization, or that the patients had received a moral or physical "*shock*" previous to the operation; for one of the greatest merits ceded to the ether is, that it spares the patient that sudden prostration so common in the use of the knife: 1st, morally, because he is assured, and has confidence that there is nothing to dread; and 2d, physically, because, *in fact*, the operation is painless.

The time has already arrived, that establishes beyond a question the use of sulphuric ether, in connection with surgery and parturient patients. But inquiry should not end here. It seems to me to be the duty of every man who engages in its administration, to observe most particularly *all its effects*; and, in an especial manner, where disease of any kind is known to exist. By pursuing this course, the day is not far distant when ether will be admitted to the widest field of therapeutics, and thus made eminently conducive to human happiness.

Since writing the foregoing, several articles have appeared in the "*Transactions of the American Medical Association*," all of which are commendatory of ether and chloroform. They will do much in establishing a confidence among *medical* men. But as they are likely to be read by physicians only, they do not meet the demand of the general inquirer. The public have received a fright or shock-at the hand of medical alarmists, that cannot be so readily allayed by

contradictory statements reported in this form, and intended for the professional eye alone.

Two remarks which I quote from the above work are too much in keeping with the views I have held for a long period, not to mention them here. They will be found on p. 246, vol. ii. In speaking of advantages unlooked for in its use, the article says:—"It will be not a little curious should observation prove that a danger, which anæsthetics were supposed likely to increase, is diminished by them." Again, in relation to obstetric cases. "A year ago, a very intelligent committee of the Association expressed the opinion that they (anæsthetics) had then been given to more than two thousand parturient women. That this number has been, during the past year, more than proportionably increased, the committee have no doubt. The practice has, as they believe, gained ground everywhere, and has, in some places, become almost general. The cases must certainly now be enumerated by thousands. In no one has a fatal result followed. No one woman has yet lost her life in consequence of the pains of her labour having been controlled by etherization."

of the head is best detected by the habit of taking the pulse from the temporal artery.

The ether should be brought gradually to the mouth of the patient,—by so doing all irritation of the larynx and lungs is avoided. Direct to take regular and natural inspirations, to avoid swallowing the vapour; and should the breathing become stertorous, or in any way distressed, desist from its use until the natural breathing is restored.

If it should be found desirable to give the ether to that extent to induce narcotism, never suffer yourself to be thrown off your guard by any demonstration on the part of your patient. Firm, cool conduct on your part is more remarked by the patient than the casual observer would suppose. It is not unfrequent that a loud outcry may be induced, a distressing groan, or other manifestations of inconvenience or pain, which invariably pass off, and the strongest assurances are given by the patient, if aware of this fact, that he knows of no particular reason for such conduct.

It will be found, after inhaling for a minute or two and no effect is produced, that by allowing the patient to take one breath of atmospheric air considerable dizziness is felt. As a general thing, a very few inhalations after this are sufficient; and if the patient should resist, it is best not to meet that resistance by any physical force, but by firm yet kind treatment.

Should the operation be one that will require the introduction of the finger or thumb between the teeth of the patient, it may be well to protect it with a bandage, in view of his closing the mouth.

If ether should produce much prostration (which it is

most apt to do when the atmosphere is least charged with oxygen), it is well to recommend self-exertion, as walking about, &c.; but if the desire to sleep is too strong to be resisted, entertain no fear from that indulgence, as the patient will soon awake refreshed.

After inhaling for a certain period, should any spasmodic action occur to retard breathing, sprinkle a little cold water suddenly into the face, or a pretty active slap between the shoulders, will be sufficient to relieve any obstacle in this respect.

I have occasionally given the ether for the removal of a tooth, and, when the effect passed off, some little complaint of headache was made, but a few inspirations of the same by the nose will invariably remove this difficulty.

The foregoing directions were prepared by myself in 1847, and published in the "Dental News-Letter," for the purpose more particularly, of securing a safe administration of ether in dental operations. When used, however, for painful and long-continued surgical cases, it should be given more intensely. The knife should not be used until the patient is brought completely under its influence; and fresh ether and fresh air should be alternately inhaled in such proportions as the case may require to keep the patient perfectly passive.

When used in labour, the directions are so very simple as to render it almost impossible that any one can be injured by it, even if she should take into her own hands its supervision. The pains are of a character that may always be entirely relieved or much mitigated by the ether, at a point far short of the loss of consciousness; and no woman of ordinary judgment could

be using the ether for the space of five minutes, under these circumstances, without really knowing more about it than any one can tell her, though a volume be filled in so doing. It is only necessary that the cloth or sponge should be frequently supplied with fresh ether. I would be understood in this, of course, to have reference to a natural labour and healthy condition of the patient.

In regard to its use in complicated cases, it will often be necessary to administer it to its greatest extent, and in view of this, those directions which are given for its use in dentistry and surgery will be found applicable.

I believe there can be no previous condition of health which can be made to suffer by a judicious use of ether in childbirth, so much as by withholding it, unless, indeed, it be aneurism of the aorta; and even to this critical condition of the system do I carry my doubts.

SULPHURIC ETHER.

ITS PHYSIOLOGICAL EFFECTS.

THERE is, probably, no one article in the whole range of *Materia Medica*, used as a specific, which, being taken into the system, presents so great a variety of contradictory and conflicting phenomena as sulphuric ether, both as relating to different individuals and to the same person under different circumstances.

This is forcibly illustrated, in the first place, as a matter of *taste*. To most people the smell of the ether is particularly agreeable, if not approached too suddenly. Others entertain for it no particular fondness or disrelish, while another class are much annoyed by the least recognition of its odour. Tastes also vary under different conditions of health; and, perhaps, other trifling circumstances may serve to influence our ideas in this respect, as for instance, its being taken upon a full or an empty stomach.

I have never known an unpleasant dream to occur, or any unpleasant effects whatever (everything else being equal), when the ether has been agreeable to the palate. Hence, I view it as important so to administer it, as to make it the most agreeable, *or least* objection-

able to the patient. Affectation of dislike to the ether, even, will have its pernicious influence upon the mind.

Ether varies as an irritant to the mucous membrane. Its vapour frequently induces considerable coughing, and its liquid application, excoriation. In others, it is similarly used with the greatest impunity. It most frequently becomes a counter-irritant if inhaled during a fit of spasmodic coughing.

Ether is exceedingly pervious to the air-cells of the lungs, being more persistent in its effects, in proportion to the depth it may have reached, over and above the former free ingress of atmospheric air. It has been known, in a few instances, to be retained upon the breath for an entire week. It affects the breathing as variously as it does the pulsations of the heart, or the working of the mind. Sometimes the breath is short and quick; at others, long-drawn and full. It will not unfrequently be accompanied with a groan or snore, and as frequently induce the quiet breathings of the infant. All these effects, however, are very much within the control of the operator, and great pains should be taken to establish that system of breathing, which it may be most desirable to keep up during the whole process of inhalation.

The effect of the ether upon the heart is most frequently to quicken somewhat its pulsations. It also induces a gradual decrease and weakening of the pulse, and it is not unusual that no perceptible variation takes place, from what may be considered as a perfectly normal condition of that organ.

Deoxydation of the blood has been attributed to the ether. Although no alarm has ever been expressed

from this fact, I am disposed to believe, that whenever the arterial blood has been found unusually dark, there has been some mismanagement in the administration. There has been a great variety of inhaling instruments constructed, many of them with the express object of shutting off the atmospheric air. Now, inhaling the ether under such circumstances would be most likely to induce *apoplexia suffocata*, and the blood would be very apt to present all the appearances it does when subjected to congestion from any other cause. A capital surgical operation where this state of things exists, has, probably, saved the lives of many from the consequent loss of blood.

In perfect etherization, its effect is to relax all the voluntary muscles, without seriously affecting the action of those commonly called involuntary, as the heart, lungs, uterus, &c.; and, whenever these functions are interfered with, it becomes modified by the judicious use of the ether alone.

Copious perspiration, accompanied with heat over the whole surface of the body, the head and trunk heated, with the extremities cold, a numbness in the hands and feet, and a noise in the ears, are the most usual effects of the ether. But these are productive of no other inconvenience than as they may prove agreeable or disagreeable at the moment of inhaling.

The action of the ether upon the nervous system will be found in the paper of M. Longet, introduced in another part of this work, also under the head "*Neurology*."

SULPHURIC ETHER IN SURGERY.

I BELIEVE that ether has been used in almost every variety of surgical cases that are at the present day known and practised. If there are any exceptions to this universal usage, they have probably been mostly those of deep-seated diseases, or of malformation about the throat, rendering it important that every facility should be enjoyed by the operator, even to the presence of mind on the part of the patient. Still, very many formidable operations of this character have been performed with the aid of the ether. Others have been commenced under its influence, saving to the patient the whole of the pain and shock incident to the first and most extensive incisions, and then suffered to pass off, if the nature of the case seemed to require it; also, in a few instances, it has been resorted to in the latter stage of an operation, when the pain would have been intense without it, and circumstances could allow of this half-way system of using it.

So generally and so frequently has the ether been employed by surgeons during the past four years, simply for the purpose of abrogating pain in the passage of the knife, and so much has been written establishing this fact, it would seem hardly necessary for me to multiply words upon this part of my subject, merely to

recapitulate cases that have already been reported in a way to meet the public eye. Still a few suggestions in this place may not be amiss.

It has heretofore been deemed all-sufficient that the ether has secured a painless operation; and without leaving in its train any serious or bad consequences. This, to be sure, is the primary consideration, and one, of itself, of immense magnitude. All its incidental effects, both upon the mind and the body, have been too much overlooked; they have, at most, been viewed as *ether peculiarities*, and suffered to pass too easily from the minds of those who have witnessed them. I would suggest greater care and closer observations in these respects. I believe none are better qualified to investigate this matter than the surgeons and physiologists of our own country, and I trust they require no other incentive to action than the assurance, that it is a field, not only for useful, but exceedingly delightful investigation. I am satisfied that *ether peculiarities* are intended to subserve some greater end than to add merely to our momentary amusement. The surgeon who is in the constant use of the ether will have frequent opportunities of observing these effects, and an occasional report of them may serve greatly to the advancement of mental philosophy.

I would recommend the use of the ether in all cases of probing or sounding, as in wounds, fistulas, affections of the urethra, bladder, &c. I was present at a case in company with my friend Dr. Griseom, where it was impossible to administer an enema in consequence of the great irritation of the parts. The ether was inhaled, and the difficulty entirely obviated.

As the advantages of *ether in surgery* will be made to appear in every case reported under other heads in this little volume, I shall proceed at once to their consideration.

P A T H O L O G Y,

CONSIDERED IN CONNECTION WITH ETHER INHALATION.

EARLY fears entertained in the use of ether, from any diseased condition of the system, led to by far the most serious objections urged against its indiscriminate administration. These objections, it will readily be seen, were of a character to preclude a large portion of the community from participating in its advantages, rendering it of the greatest importance that its use should be limited as much as possible to the hands of careful medical men.

Empiricism, to a certain extent, must be employed, in view of these circumstances, to *feel* our way along; to use the ether as a prudent navigator would throw his lead in passing into an unexplored harbour, was the duty its pioneers had to perform. Among this class it has been my lot to be placed, even at the risk of being denominated “quack.” But the following cases are submitted, and the truth they may elicit must be my justification.

CASE I. *Bronchitis*.—Miss J., a patient of Mr. D. Neill, dentist, was brought to me by that gentleman, in the summer of 1847, for the purpose of taking the ether to have several teeth extracted. She had been a

sufferer from the above complaint for more than a year, and no previous treatment had afforded her relief. I gave her ten or twelve inhalations of ether. It produced considerable irritation, and I requested her to call again that afternoon to let me know its effect. She did so, informing me that she felt no further inconvenience since the morning's experiment. I proceeded to give her more. She inhaled it more easily at this second exhibition, when I carried it to such an extent as to produce a slight dizziness, and then stopped, desiring her to call the next day, when I promised, if she felt no serious inconvenience from previous trials, I would give her enough to allow of the removal of some of her teeth. The next day she called, and stated that, so far from injury, she felt that the ether had been beneficial. I administered it that morning, and several teeth were removed. Upon awaking, she felt no inconvenience, and desired me to give her more. This I declined doing, for the reason that the remaining portion of the operation would lead to the necessity of taking more ether than I thought would be prudent at that time, and an intermission of a few days would enable us to form a better conclusion as to its effects upon the throat. Three days after this the ether was given again, and the operation completed; Miss J. expressing herself as feeling perfectly free from her former complaint. The fauces presented nearly a healthy appearance.*

Among many similar cases wherein I have used the

* The foregoing case I took occasion to call to the attention of Drs. C. Morris, J. D. Griscom, and other medical friends, at the time of its occurrence.

ether, I have had opportunities of carrying out my observations in two others only. One of these was a gentleman about thirty years of age, the other, a girl aged fourteen; in both of which the ether effected cures without the aid of any other agent. In none of the others have I heard of injury resulting.*

CASE II. *Hysteria*.—Perhaps the most remarkable and interesting case I can relate under this head is the following:—A young lady, aged 17 (habits not formed), came to have two very large and much decayed lower molar teeth extracted, accompanied by her father. She resisted the operation most strenuously. He very manfully assisted me, feeling, however painful, it was a duty that must be performed, as his daughter's health was suffering. I think, in the whole course of my practice, I never have witnessed a more distressing scene. Her screams were alarming, and her sobbing and moaning, for two or three minutes after the teeth were out, were enough to harrow the feelings *even of a dentist*; when, suddenly, she laid her head back upon the chair; her features perfectly calm, she exclaimed to our astonishment, "Oh, what a heavenly dream I have had! I thought I was at a ball, dancing the polka, *and such a band of music!*" All this was told with constant

* In a letter from Dr. Protheroe Smith, of London, to Professor Simpson, he says this: "I have kept patients under its (chloroform) influence from half an hour to twenty-eight and a half hours. I have used it in cases in which bronchitis was present; and one lately in which, at the time, there was complete aphonia."

As this was a case of parturition, and the Doctor further says: "She has never had so good a time," in previous confinements, the inference is, that she sustained no injury from its use as relates to the throat.

interruptions from her sobbing, an accompaniment she found it difficult to reconcile with her feelings. She assured us she had not been hurt by the operation, nor suffered the least inconvenience.

A very similar case to the above, was one of a young lady about the same age, who, upon being questioned why she cried so bitterly, exclaimed, "I cannot tell, unless it is for joy that the teeth are out." She said she suffered no pain in the operation, and did not know the teeth were out, until she saw she was spitting the blood.

I have noticed this peculiarity in hysterical patients: if the fit is occasioned by the *idea* of the operation, the ether will almost invariably allay it. If, on the contrary, the patient is calm and collected, the ether will induce it.

CASE III. *Hæmoptysis*.—A married lady, about thirty years of age, desired the ether for the removal of one tooth. She informed me, that she had coughed from the lungs, the day previously, a small quantity of blood. She had, also, a similar attack the year before, which left her much prostrated for a long time afterwards. I proceeded to give the ether as described in Case I., Bronchitis; and, on the third trial, removed the tooth. This was on the third day after the bleeding. When this lady called, after having inhaled the ether twice, she made this remarkable observation. "In walking to your office, Dr. Flagg, I could not feel the stones to my feet. Since taking the ether, my moving about is more like *flying* than walking. The air now passes into my lungs, where it has not been for more than a year!" Nearly a week after this, the

husband of this lady called to inform me, that his wife was enjoying better health than she had for many months, and—this is all I know of the matter.

I am aware, that a few cases have been reported of hemorrhage having followed ether inhalation, at a period varying from twenty-four hours to a week after its use; *but none under its immediate or primary influence.* What part the ether had to do in bringing about this bleeding, any more than the last liquid that was taken into the stomach, has not been explained. Hence, it becomes a question whether the bleeding might not have occurred even earlier than it did, or, being delayed for a few days, might not so large a portion of vascular organization have become implicated, as to have rendered the bleeding more profuse, and, consequently, more dangerous? A celebrated Eastern judge used to say, “If things hadn’t happened just as they did happen, nobody could possibly tell how they would have happened.”

I have given the ether to a large number who have, at some former period, bled at the lungs, and I know of none among them who have suffered, in any way, from its use.

CASE IV. *Phthisis*.—Dr. W., of Brooklyn, N. Y., visited me in the early part of 1849. He was on his way to Washington to recruit himself, suffering from excessive labour in his professional calling, and, apparently, fast sinking from this disease of the lungs. The object of his call upon me, was to have me fill a couple of teeth that required that operation. His cough was almost incessant, and he had become so weak, as to be unable to raise anything from his lungs, unless the

secretions became very copious. He was greatly emaciated. Upon attempting to prepare his teeth for the reception of the gold, I found it impossible to proceed, and suggested that he inhale a small quantity of ether to check his spasms. He did so, and I was thus enabled to complete the operation to his entire comfort. I then directed him to obtain a small vial of ether, and to resort to it as often as he felt his coughing oppressive. My directions were followed, and the Doctor now tells his friends that he cured himself by the use of sulphuric ether.

A gentleman, now residing in Washington, informs me that an examination by one of the most eminent physicians of that city, leads him to believe that he has but one lung left! He passed the winter of '48 and '49 in this city in great distress, suffering from cough, night sweats, and sleeplessness. He tried the ether but found it too exciting, and now resorts to the use of chloroform as the only means by which he can obtain rest.* Many other cases I am acquainted with in

* Sunday, Sept. 22d, 1850.—The gentleman above alluded to, Mr. Stansbury, departed this life at 6 o'clock, A. M., this day. Yesterday morning he sent his nurse for me to visit him, for the purpose of putting him under the influence of ether, as he was in great distress. I saw him at ½ A. M.; he was attended by his mother, and was evidently dying at that time; pulse 140, wiry. Had slept little or none through the night; mind clear, and expressed himself as sensible of dying. In requesting me to give him the ether he only feared that it might induce coughing. He could not bear that conversation should be carried on between his mother and myself, even in the lowest whisper. We therefore retired to an adjoining room, where I stated to Mrs. S. the liability of her son's breathing his last before we could get back to him, that I feared to give the ether, as it might be too irritating, and that he

which the ether has been much used as a palliative in this terrible disease, and particularly when accompanied by symptomatic catarrh.

CASE V. *Dyspepsia*.—A young lady, aged 20, became my patient in the summer of 1847. Her health was much impaired at that time. But little could be retained on the stomach, and distress felt at every meal.

might die while inhaling the chloroform; but if he was my own son I would not withhold it from him under the circumstances.

I wet a small sponge with about twenty drops of chloroform; he held it to his nose, and breathed it for about a minute and a half, his pulse continued its frequency, but became very smooth, and he dropped into a quiet slumber, which lasted half an hour. When he awoke he expressed himself as feeling refreshed. I left the chloroform and directions with his mother in case he should desire its repetition before I saw him again.

At 1½ o'clock, P. M. I called, he was just recovering from one of his frequent violent spasms. When this last attack came on he requested the chloroform; his mother gave it to him, and he breathed it but once or twice, and gave it back to her. No effect, at this inhalation, could have been induced, either for good or harm, and upon my leaving, I requested his mother to be governed entirely by the amount of desire on the part of her son, as to giving the chloroform again.

Sunday at 11 o'clock, A. M.—I saw his mother, and learned the following particulars. Her son died at 6 o'clock, this morning. Just previous to his death, he begged for the chloroform again. It was handed to him, and he made the attempt to breathe it as before. His sense of smell was gone; he complained that it was weakened, or that it was not chloroform, and fell back and died. Having smelt only once or twice of the sponge, with the weakness of a dying man, I am not disposed to view it of any more consequence than if it had been so much vinegar. His mother thinks it eased somewhat his last moments. It is my belief that the refreshing slumber he obtained from its first administration enabled him to hold out some hours longer than he would have done without its use.

She had been treated for more than a year for spinal affection, by a man who saw this disease in every case that presented itself for treatment in his practice.

It being necessary to remove a decayed tooth for this lady, I gave her the ether, not to entire unconsciousness, but enough to induce the pleasurable tingling sensation with no unpleasant symptom attending it. A few days after this my patient called again with her mother, and informed me that she had felt so much better since I last saw her, she was inclined to attribute it to the ether, and requested me to repeat the dose. This I readily assented to, and thus commenced a regular ether treatment, which was followed by its use every three or four days for nearly a month; at the end of which time she expressed herself as feeling quite well. The health of this patient has remained comparatively good till the summer of the present year (1850), when some of her former symptoms appearing, she has at once resorted to the ether with similar benefit.

CASE VI. *Tetanus*.—In the summer of 1847 I visited a patient, in company with Dr. Paneoast, who was suffering with *trismus* and other spasms, resulting from a cut in the arm with a shoemaker's knife. The patient, a man of about thirty-five years of age, had inflicted this injury upon himself in the country by the slipping of his knife, wounding the radial artery. It was tied a short distance above the wound by his physician at home; but, as the bleeding continued, he came to the city, and the operation was again performed by Dr. P., of tying it just below its bifurcation from the *ulnar*. The bleeding was thus stopped, and the patient was doing well for several days subsequently. I think it

was seven or eight days after this that spasms commenced. When I saw him his pulse was 140. Deglutition so much impaired as not to be able to swallow liquids. Jaws closed, and dorsal muscles rigid; complaining of much pain in his arm and back.

At 11 o'clock, A. M., I gave him the ether, administering it only to such extent as to make him perfectly free from pain. He opened his mouth sufficiently wide to enable me to pass my thumb between his teeth. Pulse a little quickened; could not swallow. At 5 o'clock, P. M., saw him again; he had slept about one hour after we left him in the morning; pulse continued 140. Muscles of the jaws remained relaxed; back a little relieved, but arm more painful; deglutition entirely interrupted. The ether was given till all his pains were relieved. He seemed very happy, and exclaimed with much earnestness, "Oh, that I could die now!"

The next morning, at 7 o'clock, I called upon patient, and found him in great suffering; much agitated; constantly getting off the bed and lying down again; pulse rapid, and so irregular as to be unable to count it.

At 9 o'clock, A. M., Dr. Pancoast called upon me by appointment to visit patient with him. I informed him that I had seen him two hours previously, and from the condition in which I found him, it would be of no advantage, in my opinion, to continue ether treatment any further. About noon that day the poor fellow died. A post mortem examination showed that a small, hard tumour had formed in the wrist a short distance below the wound, and a result of that wound, which was bearing hard directly upon the nerve; thus exerting a mecha-

nieal influence, rendering all *medicinal* treatment, as a matter of course, inefficacious.

But few cases of this disease are reported as having been cured by ether or chloroform; still they are both agents that should be freely used, as immunity from pain will, in many cases, afford ample time for those medicines to act which *will* have the effect to remove exciting causes. Again, it is not unusual to extract one or more teeth in cases of lock-jaw, for the purpose of enabling the patient to get food or medicine into the mouth. The ether would save this necessity, and if its good stops there, how invaluable must it be.

I would recommend that ether be used in tetanus by inhalation, and chloroform by external application; as suggested in treatment of NEURALGIA and RHEUMATISM.

CASE VII. *Hydrophobia*.—I can only advert to a single case of this disease in which anæsthetics have received the credit of effecting a cure. A report of much interest is furnished for the April number of "The American Journal of the Medical Sciences," [1849] by Prof. Samuel Jackson, of this city. From this report it will be sufficient for me to furnish the prominent facts only, while I would like all who are interested in the subject to obtain the Journal, and read the entire article as it there appears.

In the month of July, 1848, Mrs. B., residing at Camden, N. J., in endeavouring to rescue her child from the attack of a dog, received a bite upon the inside of her wrist, so slight, however, as not to lead her to mention the circumstance at the time, and no inconve-

nience was felt until the early part of October of that year.

It appears that the fangs of the dog had made two small punctures about an inch apart, one of which festered, and the other was hard and painful at this time. In a few days a small tumour formed on the arm near the axilla.

Near the end of October, Mrs. B. was surprised to find that the sight of water induced great dread and shuddering, yet she said nothing to her husband of having been bitten in July. In attempting to swallow some water, she was seized with violent spasms of the throat. Her physician, Dr. Fisher, was sent for, who immediately called Dr. Jackson to his aid. Dr. J. says: "While in the parlour down stairs, I heard a peculiar sound that bore some resemblance to a dog's bark. It was remarked that the patient was then in a spasm, as in them she made that noise."

Here follows a description of the symptoms. But Dr. Jackson expressed, at this visit, his doubts as to its being hydrophobia, and was inclined to look on the affection as one of a nervous or hysterical character.

Together with other articles, it was agreed upon to give her chloroform \mathfrak{zss} , in an emulsion every hour if required; and at the next visit, there were so many favourable symptoms in the case, that the doctor's first impressions were rather confirmed than weakened. A similar course of treatment continued.

Soon after this she was attacked with violent spasms. The air produced from a slight motion of the hand behind her head, would instantly induce shuddering, respiration arrested, &c. Her sufferings were so great

as to cause her to toss about the bed, gnashing her teeth, and to bite and tear the bed-clothes. The following is the language of the report.

“Chloroform was sent for. It was obtained from an apothecary in the neighbourhood. When procured, as no sponge was at hand, I soaked a rag with it, and seizing her by the back of the neck, attempted to hold it near her mouth. The inhalation was imperfect; as the spasms kept the patient in constant motion, and she was making plunging efforts to seize the rag with her teeth, some caution was required to avoid being bitten.

“A sponge was then procured, and the inhalation was more effectually performed; as the effect took place, and the spasms were mitigated, the patient assisted herself to hold the sponge to her mouth. In a few minutes the full effect was produced, and she fell perfectly insensible, every muscle in perfect relaxation, and the respiration easy and natural. An enema was now administered, consisting of Pulv. ipecae. composit., ℥ij; chloroform, ℥ij, in starch water.”

At this period a consultation was had, and the conclusion formed, to cut out the cicatrix upon her arm; and, at the suggestion of the patient herself, the wound was cauterized.

Again I quote. “The excision of the cicatrix was hardly completed, when a spasm came on. The chloroform was immediately administered with the sponge, its full effects were induced, and she again became insensible. She was some time in this state; as she was recovering from it, she raised herself slowly on her knees, and with her eyes intently gazing, and her arm stretched upwards, she addressed the vision of her lately lost

child. When she had entirely recovered she related the vision she had seen."

Monday, October 30th.—Patient was found improving, so much so, that a few inhalations would suffice to arrest further development of spasms, timely notice now being given of their approach.

A singular feature of this case is, that the hearing and sight of Mrs. B. should have become much quickened in her sickness; the same being rather dull in health. The report is continued up to the 25th November, and there reads: "Rested well last night; arm less sensitive; wound looks healthy; omit pills; continue the liniment."

"From this period Mrs. B. continued to improve in health. Her milk returned. The wound cicatrized in the second week of December; the pains ceased in the forearm, but the shoulder and axilla continued sensitive, and occasionally painful, into the commencement of January. To the present time she continues to enjoy the most perfect health."

Dr. Jackson now gives it as his opinion that this was a true case of hydrophobia.

CASE VIII. *Cholera.*—An article, some two years since, was making the circuit of our various papers, purporting to be a letter from some European physician, in which he states that, being at a former period in a town that was then suffering by the presence of cholera, he became attacked himself in the middle of the night with all its premonitory symptoms. No one was near to assist him, and it so happened that no other medicine was within his reach except a bottle of sulphuric ether. He seized upon this, and inhaled a large quantity. The

result he states to have been entire freedom from pain, profuse sweating, and a quiet slumber until morning. When he awoke, the transaction appears to have passed from his mind, and it was not till several years afterwards (when ether had acquired its new celebrity), that the facts in his case made their impression upon him.

I wish particularly to call attention to the use of this agent, in cholera, for what it is really worth. It is always desirable to relieve pain and break up spasms of all kinds. Ether has seldom been known to fail in doing this. Another important desideratum is to infuse heat into the system, and to elevate the pulse. In a healthy condition, the ether is known most frequently to do this; how it would do in this particular abnormal state I am not prepared to say, but as I have seen very little upon this subject, and as this destroyer is now stalking abroad in our land, it is to be hoped the ether may have a fair chance to show its merits.

CASE IX. *Insania*.—Seeing it suggested in the “Boston Medical and Surgical Journal” that the ether had been used with advantage in this disease, particularly that of a wakeful type, I am happy in being able to attest its utility to a very remarkable extent in a case which presented itself to my notice. Mrs. G., a lady of about fifty years of age, being subject to occasional attacks of partial derangement, in consequence of severe exposure to the sun’s rays a few years since, was suffering in the fall of ’48 with one of these turns, when her husband sent for me as a friend of the family, in part, and also in part as medical adviser in the case. Upon entering the chamber, I found Mrs. G. much excited; more so in consequence of my presence. Recognising me, she

called me by name, and requested me to give whatever medicine I saw fit to her husband, she required none; when she did she would send for me, &c. I observed to her that, hearing of her desire to sleep, and her extreme wakefulness, I had called as a friend, and desired her to look upon my visit in that light altogether. She became recoiled in a measure, but still insisted that she should take no medicine. I requested her to allow me to take her pulse; this she refused. At this stage, one of the members of the family called me one side, and observed they thought it would be necessary to use some force, as the patient was always very determined in having her own way in these paroxysms. Mrs. G. observed the whisper, and made some excellent remarks in relation to it, saying, "If anybody had anything to say in her room, she desired they would say it aloud, and in an *honest* way." I immediately acceded to the justness of her remark, and, turning to her, observed, we had a desire that she would inhale the ether, as that would be very likely to give her a short but refreshing slumber. She insisted that she did not require sleep, and begged of me not to give her the ether against her wishes. I assured her I should do no such thing; so far from it, I considered it a privilege that all should appreciate when they could obtain a safe administration of it. I then turned to one of the ladies, and observed carelessly, "By the way, speaking of ether, there are some strange peculiarities in regard to it. Among other things I have observed lately a sort of mesmerie influence it seems to possess, and I think I can, to a certain extent, control the dreams of my patients." This caught the attention of the patient,

and she expressed some interest to hear about it. I paid no attention to her, but went on relating a case in point *at the lady in attendance*. When I had finished, Mrs. G. observed that she had a brother whom she had not seen for many years, and if I would promise her a sight of him she would take the ether. I told her I would make the attempt if it was her wish.

In an experiment of this character, close observation of all the little circumstances attending the inhalation is necessary to secure success. After the patient begins to inhale properly, a few judicious remarks touching the subject should be made, in order that the mind of the patient may be fully occupied by it, to the exclusion of all others. If any noise occur in the house, or in the street, adroitly turn it to account as part of the subject-matter. The noises in the head, and other sensations induced by the ether, can all be turned to account, as will be seen more fully hereafter.

I administered the ether, in this case, about five or six minutes. In less than half that time my patient was asleep. The pulse fell from 120 to 80, and a profuse perspiration ensued. The sleep continued for about fifteen minutes, when she awoke much refreshed and calm. She said she had been to Mexico, and there found her brother, but she could not get a good view of him. "It was only a side view." I then requested her to compose herself, and try to obtain a natural sleep, which she did; and, in a few minutes, she was enjoying that slumber she had been denied for three days. She slept from 11 o'clock that evening; till 8 o'clock the following morning, and, on that day, was free from excitement.

In a few subsequent attacks, the ether has been resorted to in a much earlier stage, in the hope of arresting its progress; but, I am sorry to say, with no such decided benefit as in this first instance. This leads me to the opinion, that the ether is specific only in such cases of extreme tension as the one cited.

Since writing the above, my young friend, Dr. Hooper, of this city, has returned from Paris, and informs me that the ether is resorted to in France for various degrees and characters of excitement with the greatest benefit. Delirium tremens has been treated successfully by the use of the ether, both in this country and in Europe.

CASE X. *Catarrhus*.—The particular case I would instance under this head, was one that fell into my hands more than three years since. I was walking with the gentleman, when he was suddenly attacked with violent sneezing; at the same time the mucous secretions were so profuse, as to be exceedingly troublesome. As we were in the vicinity of my house, I requested him to step in, and take a pinch of pulverised sugar for his complaint; but, on entering my office, he exclaimed, "How strong you smell of ether," and had no sooner seated himself than his sneezing ceased. I observed jokingly, "My ether has cured you already." My friend was disposed to treat the matter more seriously, and really felt that the ether had affected him pleasantly. This took my attention sufficiently to allow him to inhale it from a tumbler through the nose, for a minute or two; when he expressed himself as having entirely recovered from the attack.

The ether was resorted to, in this case, for occasional

similar attacks for about a year, and invariably with instantaneous relief. It is now two years that no inconvenience has been experienced.

Common colds in the head, attended with a sense of fullness, headache, obstruction in the nose, hoarseness, &c., have been much mitigated, and many times relieved altogether, by the ether used in this way.

CASE XI. *Uterine Hemorrhage*.—The properties of the ether are strangely contradictory, or apparently so at least, when considered in connection with some of the functions of the womb. It has seriously been apprehended, that much danger to the mother would result in the use of ether, in view of flooding. But, strange to say, in every case reported out of the many thousands, it is averred that its influence is beneficial in this respect. A lady, who had depended upon my directions in taking the ether, in the event of her approaching confinement, informed me soon afterwards, that, in every previous labour, her life had been despaired of from excessive hemorrhage; but that, in the last, no such alarm was felt. This has been invariably the case, as far as I can learn, in all whom I have influenced to take the ether.

I observed that the effects of the ether appeared to be contradictory: my meaning will be understood by the recital of the next case, under the head of

CASE XII. *Dysmenorrhœa*.—A young lady, aged 18, had always been regular in her courses for three years, but they were so much obstructed for the first twenty-four hours, as to cause her great suffering, and were always attended with indisposition, lasting from one to three days. Having experienced the benefit of ether under

other circumstances, she resorted to it for these pains, and was most agreeably surprised to find that, not only were her pains relieved, but all obstructions removed, and the menses established.

It is now more than a year since there has been any necessity for using the ether in this case, but I am informed by the mother of the young lady, that her daughter thinks so much of the ether, as never to allow herself to suffer bodily pains of any character, without an immediate resort to it.

I am indebted to my friend Dr. J. D. Griscom, of this city for the following:—

CASE XIII.—“J. A., unmarried, tall, slight figure; accustomed to passing much of her time standing; has throughout her catamenial period been troubled with irregularities of that function. Was first seen by me in 1845, while suffering greatly. Has since been repeatedly seized with intense pain, of the character usually observed in this affection; which in each instance that came under my care, were relieved in some hours by free doses of the usual anodyne remedies. Her attacks, however, appeared to be growing more intense; so that I was induced to look for some more effectual means of relief, should she be again seized. In the latter part of 1849, I was summoned to see her. Her suffering now was of the most intense character: each paroxysm resulting first in convulsions, and then insensibility. I determined to exhibit the ether, and proceeded with it at once. After a few inhalations, the patient declared that her suffering had ceased, and in about one minute, she sank into a quiet sleep, which lasted two hours; there being then some return of her

suffering, I again exhibited the ether with the same good results as at first. After which she had no more pain, and in a few days, was in her usual health. This was by far the most severe attack of this kind, that I had ever witnessed in this patient, or indeed, in any other. I need not say that the relief was more prompt than under the former treatment, for it was immediate and perfect. She has not since had a similar attack."

CASE XIV. *Diarrhœa*.—But one case of this disease has been made known to me; and, as that presents a little novelty, I report it without comment. A lady, somewhat subject to this complaint, as the extreme hot weather came round, had frequently resorted to the various known remedies, both *allopathic* and *homœopathic*, sometimes with results that would lead her to suppose that neither school knew much, for a certainty, in cases of this kind; if they did, her own particular case was an exception; and when she recovered, as a consequence, *nature*, and her own *good constitution*, came in for the largest share of merit in effecting a cure.

This lady happened to be in my office in company with a friend, who was undergoing some professional operation; and, as the subject of ether was touched upon, I incidentally made the remark, that "I had no doubt ether would be discovered to possess remedial properties in diseases we little dreamed of at present." In making the observation, I certainly "little dreamed" what an impression I was making upon the mind of the subject of this article.

Upon returning home this patient discarded all her other medicines, and immediately commenced inhaling

the ether. She breathed it for more than an hour, but not to unconsciousness; as she approached that point, she would stop for a minute or two, and then take it up again, till, finally, she took one heavy dose, and fell asleep. She continued to sleep well through the night, and during the next day felt no motion of the bowels. On the third day costiveness was so great, as to require a resort to a dose of senna and manna. The following week I received a visit from my *quondam* patient, when the foregoing particulars were related to me.

CASE XV. *Neuralgia*.—Ether and chloroform have both been resorted to for neuralgic affections very extensively, and with various results; but in no reported case as yet, have I seen what I conceive to be a proper and thorough administration of these agents. In some, the simple inhalation of one or the other of these articles, has been all that was deemed necessary; other medicines being relied on, which are used commonly in these complaints to effect the cure; whilst in others, local application in the immediate region of the pain has only been tested. Even under these circumstances, ether and chloroform are being hailed with joy as palliatives. I would have them take rank more decidedly as curatives, and to secure this end I confidently recommend the following treatment.

From ten to twenty drops of chloroform to be applied on lint to the part affected, and protected from evaporation by oiled silk; this to be renewed at least once each hour, and oftener if the strength should be lost, and the parts suffer no excoriation. Three or four drops of chloroform, in a teaspoonful of water, taken into the stomach once in three or four hours; and the

sulphuric ether taken by inhalation twice or three times in twenty-four hours, until a glow, or some other primary symptom is induced.

I would not recommend the ether to be inhaled upon a full stomach, as nausea or headache is most likely to result; nor would I advise its inhalation immediately after taking the chloroform into the stomach, for the same reason.

A case of neuralgia will be found under the head of "Chloroform, as a local anæsthetic," and the benefits of ether in various other instances have been freely reported to me. In conjunction with the above, I would include rheumatic affections, and would recommend for them a similar course of treatment.

CASE XVI. *Nephritic Colic*.—Dr. Stillé reports a case, which I find copied in "The American Journal of the Medical Sciences," p. 550. "Within the last three weeks, a lady, about twenty years of age, after retiring to bed some hours, was attacked with violent pain in the region of the right kidney. About an hour afterwards (10 o'clock, P.M.), Dr. S. was sent for. The mother had applied warm fomentations to the loins, and immersed the feet in a mustard-bath. There was still intense pain, with tenderness over the region of the right kidney. The patient was lying bent double, her hands and feet were cold, her pulse feeble, and about sixty in the minute. The pain extended in the direction of the ureter; there was pain and a twitching motion of the right thigh, with frequent inclinations to urinate. From a review of the symptoms, Dr. S. considered the case to be one of nephritic colic. The use of ether was suggested. A teaspoonful was poured

upon a handkerchief, and inhaled for five minutes, when the patient fell asleep. In about fifteen minutes, she was aroused by a return of the pain. The ether was again inhaled, and its impression was kept up for about an hour, without carrying it so far as to abolish consciousness: the pain ceased, the extremities became warm, and the pulse rose to seventy-five. The next morning there was no pain complained of, but considerable soreness was experienced when pressure was made over the region of the kidney. The pain did not return until two nights afterwards, when a larger dose of the ether was used by the patient, without Dr. Stillé's presence or direction; but, from some cause, it did not produce the same alleviation of the pain as before. At four o'clock in the morning, Dr. S. saw her. The pain had, by this time, somewhat abated; and, upon the administration of an opiate enema, complete relief was procured. The pain has not since returned."

In the month of September, 1850, I had occasion to prescribe the ether to a young lady, who had, in the evening, eaten pretty freely of ice cream. When I saw her, between 11 and 12 o'clock, P.M., she was in great pain with spasmodic colic, accompanied with violent chills. She had retired to her bed more than an hour previously, but had not been able to sleep. Two minutes' breathing the ether dispelled both chills and pain. She slept quietly all night, after a few minutes of profuse perspiration. My patient was enjoying her usual good health in the morning.

CASE XVII. *Strangulated Hernia*.—It gives me pleasure to introduce the following case upon this subject, as prepared by my friend, Dr. John S. Rohrer,

of this city. Two others of equal interest will be found under the head of "Midwifery," in another place.

"May 9th, 1850.—Was called, late in the evening, to see Mrs. H——, aged thirty-five years, of spare habit, and short but delicate frame, the mother of four or five children. I found her labouring under severe colica pains of the abdomen, attended with retching and vomiting. Her eyes were much sunken, the skin moist and somewhat corrugated, and the expression of her countenance denoting much suffering. Upon inquiry, I found her bowels constipated, nothing having passed through them for twenty-four hours. I asked her whether she had hernia, but finding she did not understand the term, I said to her, 'Have you a lump in the groin?' to which interrogatory she replied that '*I was quite mistaken; there was nothing of the kind the matter with her. True,*' she remarked, '*there was a small lump in her left groin, but a BURGUNDY PITCH PLASTER would soon remove it, it having relieved her before, and that the pain was not in that place, but in the bowels.*' On examination, however, I found she had *crural hernia* already in a state of strangulation. I immediately had recourse to the taxis, but the stricture being firm, and the tumour tender to the touch and unyielding, I did not think it prudent to use much pressure in attempting to reduce it. Indeed, I would deprecate the practice of using much force in manipulation in all cases where there is tenderness and pain on slight pressure.

"An effort was now made to open the bowels with calomel and castor oil, assisted by injections, but without effect.

“Different cathartics were administered and repeated as often as they could be done with safety, when they were abandoned, and opium instituted. Recourse was also had to *hot* and *cold* applications to the tumour, but with no better success than the foregoing treatment.

“I left my patient after midnight, having first ordered the opium in combination with calomel, to be continued with the hope of relaxing the part, and procuring an operation before morning.

“10th, 9 o'clock, A. M.—Found my patient much prostrated, retching and vomiting having continued all night; hiccough and ejection of fæcal matter having supervened; cramp in the legs; skin moist and cold; pulse small and contracted; abdomen turgent; and great pain over the hypogastric region. Injections were again tried, but came away without any alvine discharge. Made another attempt at reduction by the taxis, but without effect.

“11 o'clock, A. M.—My friend, Dr. Pancoast, Professor of Jefferson College, was now called in consultation, and the operation for strangulated hernia agreed upon, the patient consenting to any mode for relief, having given up all hopes of recovery. While arrangements were being made for the operation, which was to have taken place at 12 o'clock, M., we agreed, previous to this last resort, to try the effects of ether and chloroform in proportion of seven parts of the former to one of the latter. The patient was suffered to inhale it freely until perfectly under the influence of the anæsthetic, when the sponge was removed, and the introduction of the hernia effected in less than one minute.

“In conclusion, I am happy to state that from the time of the inhalation of the chloretic ether she experienced, neither pain nor sickness of the stomach, and in a few days was able to attend, as usual, to her domestic duties, without any detriment.

“JOHN S. ROHRER,

“No. 557 Chestnut Street.

“Philadelphia, December 6th, 1850.”

DIAGNOSIS,

ASSISTED BY THE ETHER INHALATION.

It is hardly necessary for me to say that it is important, to a correct and judicious treatment of disease, that all the peculiarities of the case should be well understood by the medical attendant before he attempts to effect a cure; but if a new agent, however objectionable it may be from petty causes, is found to be an instrument in our hand to aid in the least in this matter, it becomes not only necessary but an agreeable duty in me to urge its claims with all the power I possess.

As I have observed elsewhere, my attention in the course of my practice is *incidentally* caught by certain demonstrations, resulting from frequent use of the ether in the department of my profession, limited almost entirely to the simple object of removing an offending tooth. In this early stage of ether treatment in surgical practice, it is natural that by far the larger portion of those who would present themselves as candidates for such operations would possess, as a general thing, firm constitutional habits, and the average of good health. My opportunities for testing it in all the branches of a regular medical practice, therefore, being limited, disqualify me from making this particular branch of my labour what I would desire it to be,

in order to secure a full co-operation at once among my medical brethren. Still, if my conclusions are correct, and sustained by the few cases which follow under this head, enough will be shown, I think, to secure the use of the ether in this important field.

CASE I. *Spinal Affection*.—In Case No. V., *Dyspepsia*, p. 60, it will be seen that the patient had been treated for many months without any benefit, for a diseased spine. Although this was a patient who fell into the hands of what is commonly called an *irregular* man, yet there were certain symptoms in her case calculated to mislead in forming a conclusion as to the precise character of her disease. Generally inert; difficulty in sustaining the erect position; and a sensation sometimes of pain, and at others, of numbness in the right arm, were probably the doctor's justification in this instance; but his infallible powders alone ought to have opened his eyes to the possibility of error after a trial of from twelve to eighteen months with no obvious advantage.

There was no unnatural curvature of the spine, nor tenderness along the column, indicative of diseased *vertebræ*, so I presume the treatment was strictly in view of reaching the *medulla spinalis*. I am led to this opinion also, from the fact that the doctor told this patient *the ether would certainly kill her!*

The French physiologist, M. Longet, says, "The functions of the encephalic centres always are suspended before those of the spinal marrow." If this is the case, then would it be safe to carry etherization to a limited extent, even should it prove injurious under circumstances where spinal disease is known to exist. This

reason alone, at the time, led me to try the ether. As my patient expressed the opinion that her health was improved, I concluded (as the spine was not intended to be reached, and, according to M. Longet, it was not reached), the disease was not pertaining to the spine, but was merely symptomatic of indigestion.

If, on the other hand, the Frenchman is wrong, and I am wrong in my opinion as to the nature of the disease, and the ether really reached and served to cure this "spinal affection," then all I ask is to let it take rank among the curatives of that formidable complaint.

CASE II. *Carditis*.—A lady, residing in the city of New York, came to Philadelphia in the summer of '49 for the purpose of taking the ether at my hands, and having a troublesome tooth extracted. She was accompanied by Dr. E. Wallace, of this city. She observed to me that she had been under treatment in New York for several months past, for an affection of the heart, and that her physician was very much opposed to her taking the ether. Her husband was also much alarmed at her determination to act in opposition to the advice of their medical friend. The principal difficulty in her case appeared to be a *fluttering of the heart*. This was the case, as she said, upon the occasion of any undue excitement,—running up stairs, or sudden agitation. Upon my questioning her if this fluttering was accompanied by much distress, she said "No; and it soon passes off." "Well," I observed, "there is no more cause to fear this palpitation from a little ether than from a little exercise." I proceeded to give her the ether, with my finger placed upon the temporal artery;

and she had not taken more than ten or twelve inspirations when she suddenly complained that her heart was fluttering. I requested my friend, Dr. W., to take the pulse at the wrist, and see that no acceleration had occurred. I immediately pronounced it a nervous spasmodic action in the region of, but entirely disconnected with, the heart. In this opinion Dr. W. fully concurred.

I carried the etherization in this case sufficiently far to remove the tooth without pain, and the pulse did not vary from a regular beat of 80 in the minute all the way through.

The following week this lady visited me again, repeating the compliment to me of riding one hundred miles to avail herself of my services.*

CASE III. *Diseased Antrum*.—The case I am now about to relate was also a lady from New York, and a patient of Dr. Herring's of this city.

In the month of June, 1849, Mrs. B. came to this city to consult with Dr. H. in relation to an unpleasant discharge of matter from the nose, which had troubled her for some time, and which had not yielded to medical treatment, although much skill had been employed in the case.

This lady had received a blow upon the forehead from a fall about a year previous to my seeing her, and it was supposed that the discharge proceeded from the *frontal sinus*. Dr. H. suspected that it might proceed from

* Since writing out the above case, Dr. Wallace has informed me that the physicians of the lady have concluded that her disease is not one of the heart, but *pneumonia*, a difference of no great consequence on one account, as the *modus medendi* is pretty much the same.

the *antrum*, and desired her to see me upon the subject.

There were but two facts in the case which would lead to the belief that the matter came from the *antrum*, but they were so prominent that I recommended the *antrum* operation to be performed, if for no other reason, to clear all doubts in the case. In the first place, there was a very decayed upper molar tooth, from which considerable uneasiness had been experienced; and, secondly, the discharge at the nose was more frequent and profuse when the patient was recumbent than when the head was in an erect position. It was desirable, also, that the tooth should be removed independent of all previous considerations.

Before proceeding to extract this tooth, I explained to my patient that it was possible one of its fangs might open directly into the cavity of the jaw; and if such was the case, and matter existed there, it would at once discharge itself. But, on the other hand, it might be necessary to broach through a thin plate of bone after extracting, and this would give neither pain nor inconvenience. The lady was willing that the tooth should be removed; but, from a needless dread of having an opening forced into the chamber of the jaw, she exacted a promise from me that I would not perform that operation. The result was, as no opening was made by the primary operation, of course we were no nearer in ascertaining the precise seat of disease. But my object in stating this case is only to show how the ether could be made subservient to this end, as the patient could not be prevailed upon to have a tooth extracted even, without its use.

CASE IV. *Feigned Disease*.—A lady, upon a visit to this city about two years since, for the purpose of obtaining the advantage of Professor Jackson's medical skill in her case, was treated by that gentleman for several weeks, or until he saw fit to abandon it, finding that her symptoms did not yield to any of the remedies used. Her friends made known the case to me; and, as a tooth was to be extracted for the young lady, the propriety of inhaling the ether was discussed and concluded upon.

This young lady was about twenty years of age, of sanguine, nervous temperament, appetite and general health good. Her mother, and only parent, had been extremely indulgent with her; this, with a naturally strong and wayward disposition, had led her very often to practise upon the fears and credulity of her attendants, members of the family, and other friends. She would frequently, when by herself, scream in the most frightful manner, as if in great distress, causing much uneasiness and fear on the part of the family, that she might, in some of these fits, do herself or others some bodily harm. At times she would indulge in these freaks, and turn them somewhat to amusement, by laughing at the distress they seemed to induce in others. She seldom was inconvenienced by them herself, unless, indeed, it was when she failed to get up the usual degree of excitement among her attendants. They would sometimes occur two or three times a day, and again not more frequently than that in a week.

I had visited her for a few times in order to acquire some knowledge of her natural character and disposition, and that she might be led to feel sufficiently familiar with myself, to remove that restraint which might

exist in view of her taking the ether from an entire stranger. In these visits I found her a pleasant, social, and quite intelligent Miss, conversing freely, and, as I thought, understandingly, on the nature of her complaint. She was delighted at the idea of taking the ether, and appointed the time when she would visit me at my house for this purpose.

On the day set, this lady came in company with her aunt and a sister, and I proceeded to give her the ether. She had progressed but a minute or two in *inhaling*, when she cried out, "That's enough—take it away—oh, that is just the way I feel in my fits! Oh horrible! don't go away—stay by me," &c. Her eyes glared, and she looked tragical. She held very firmly to my hand. Her friends were somewhat alarmed, but I was satisfied that the effect of the ether was neither painful nor hysterical, as in either case she would be more likely to repel than to hold on to the cause of her trouble; I, therefore, assured her I would not leave her, if she would stop screaming, and take up the subject of her case in a more rational manner. This she acceded to, but insisted very strongly that if her hands should be suffered to come together the pain would be intolerable, and the consequences might be serious! I asked her if she was fully sensible of that fact. She said she was. "Then," said I, "it would be an act of great folly for you to bring your hands together;" and, withdrawing mine, I gave her to understand she must take the risk of her own hands meeting.

Soon after this, I observed to my patient I thought she was mistaken about this *hand* business, and that she might venture to lay one hand upon the other with-

out any uncomfortable feeling. She expressed a doubt, but was willing to make the effort. In doing so, there was much hesitancy about the proceeding, not at all in keeping with the previous idea, that her hands would rush together if left to themselves. Observing this, I remarked, "It is a case of *will* entirely. If you desire to act, you can act; and when you create alarm in your family, a high moral sense of your obligations would tell you to proceed in a very different manner. All you have to do is to sit perfectly still, and hold your tongue whenever you feel this disposition to jump about and make a noise; and, in doing so, I cannot see wherein you will differ from other well-behaved young ladies." She had by this time placed one of her hands in the other, and, perceiving that they felt natural to each other, was pleased to compliment me by saying she thought I understood her case very well, and she would endeavour to follow my directions.

The health of this young lady continues good, and she now seldom has these violent turns; still she is not entirely free from them. I suppose it to be a species of epilepsy, that a rigid, moral discipline would do more for than any other treatment.

"M. Bouisson, of Montpellier,* proposed in 1847 to apply ether inhalation as a test in cases of feigned deafness, dumbness, stammering, and contraction of the back or limbs. He cites a case of feigned contraction and atrophy of the muscles of the throat, the character of which he readily detected by ether."

* Gazette Médicale, Août, 1847.

NEUROLOGY.

NEW THEORY SUGGESTED FROM ETHER INHALATION.

THE following is an article communicated by myself to the "Medical Examiner," No. XXXVII., January, 1848.

"The theory of the *nervous system*, or rather that portion which embraces the passage of the nerves from the brain to the outer surfaces of the body, has heretofore been held to consist merely in a double arrangement of organization, thus classified:—1st, the *motor nerves*, or those which incite to action; and 2d, the *sensor*, or that complicated system of machinery, which is so constructed as to convey to the mind various sensations through one medium. One set of nerves has been thought sufficient to allow us to discriminate between that sensation which we denominate simply *touch* or *feeling*, and that commonly called *pain*.

"From a series of experiments with sulphuric ether, in which I have been engaged for some time past, I am in possession of facts, which certainly go far to refute preconceived opinions, touching this interesting question in physiology; yet, with proper diffidence would I lay before the scientific world, deductions I cannot resist, arising from those facts.

"That ether can induce that condition of perfect unconsciousness of pain, during the passage of the sur-

geon's knife in any known operation, is a question at the present moment entirely beyond cavil. As to the propriety or safety of so doing, it is a matter of no importance in reference to this subject of communication, except that it has led to as little use of the article as would justify us in securing the greatest good. For example:—cases have presented themselves to me, where I would not suffer more ether to be taken than would cause the consent of the patient to the removal of a tooth; a consent that could not be obtained under usual circumstances. The pain probably was as great, or nearly so, as it would have been without the ether; but even under these circumstances, such individuals have been very united in ceding to it great merit.

“It therefore became a desideratum (in the dental department particularly) to give, as nearly as possible, just a suitable quantity, and no more; and in my endeavours to establish this point, many peculiar mental and physical effects have been produced, which I have deemed worthy, from time to time, of presenting to the public, through different periodicals of the day.

“There is a particular point of etherization, which, if improved at the moment, will leave the patient in full possession of all his faculties, with the single exception of the SENSE OF PAIN; and particularly, the consciousness of *touch* is as acute as under ordinary circumstances, if not quickened even. To account for this, I assign to the system, two sets of nerves; one, to carry to the brain the idea of TOUCH, the other of PAIN.

“I submit the following cases and certificate in support of my theory:—

“A lady, operated upon for scirrhus breast, I so

etherized as to keep her in conversation upon indifferent subjects through the whole operation, which required two incisions, together about sixteen inches in extent, the entire removal of the gland, and the taking up of five or six arteries. Her replies to my questions were in a drowsy tone of voice, but strictly correct and consistent; her sense of taste and smell was tested by one of the medical gentlemen present, and found to be unaffected. She expressed much astonishment when told that the operation was completed, and observed *that she only felt them marking it out.*

“So large a number have told me that they felt distinctly every part of an operation, *unconnected with pain*, that I deem it only necessary to report the following, as illustrative of *increased* sense of touch:—

“In extracting a tooth for a gentleman, I used the German key (an instrument which carries with it many painful associations). I requested him to note any little thing that might occur to him, and explain it to me after the operation. He said that he was entirely conscious of the sense of touch; so much so, that he could detect by the feeling, that the bandage which I used upon the fulcrum was composed of *silk*; nothing like pain was felt.

“Several have remarked that a sensation of *cold* has been imparted from the instrument, without pain.

“The following certificate, I am authorized to submit:—

[Copy.]

Philadelphia, Dec. 15, 1847.

My attention having been taken by Dr. J. F. B. Flagg, to the subject of fixing my mind upon the sensa-

tion of *touch*, while under the influence of ether, for the purpose of having a tooth extracted, I hereby certify, that at the moment my tooth was removed, I distinctly felt the slightest touch upon my *hand*, my *knee*, and my *forehead*; that I felt the whole process of extracting my tooth, but not the least pain.

F. STOUT.

“In reference to the above case, I would mention that after the gentleman had completed inhaling, and the instant previous to extracting his tooth, I made a cross upon his knee with my finger, so delicately as scarcely to be sensible of the touch myself. When the effect of the ether had passed off, I asked him what figure I described upon his knee. He replied that he barely felt it, but what he *did* feel was like a figure 8. Now it will readily be perceived, that in order to make a cross, we necessarily make the motion as described by this patient.”

An operation of amputating the arm at the shoulder joint, performed by Dr. Mutter, at the Jefferson school, in this city, last winter, I mention in this place as remarkable, from the fact that the patient only complained of the *cold* during the operation; but was made comfortable by throwing his garment across his shoulders. This case will be found more fully reported under the head of “*Clairvoyance*.”

The following are a few of the general propositions in which the results of experiments are summed up, as performed by M. Longet, taken from the British and Foreign Medical Review.

“1st. In etherized animals there is absolute momen-

tary suspension of sensibility, as well in all parts of the cerebro-spinal axis, usually sensitive, as in the nervous trunks themselves.

“6th. The action of ether on the nervous system is much more directly and completely stupifying than alcohol, which merely renders the sensibility more obtuse, without suspending it entirely, at least in the nervous centres.

“7th. Ether abolishes momentarily, but completely, the excito-motor, or reflex action of the spinal marrow and medulla oblongata; and, consequently, acts in an opposite manner to strychnine and opium, which exalt it.

“9th. The functions of the encephalic centres always are suspended before those of the spinal marrow, and return before them.

“10th. Ether supplies a new means of isolating, in the living animal, the seat of general sensibility from the seat of the intellect and will.

“11th. In animals, we can so graduate the action of ether as to produce, at will, two stages, which I name, 1, *Etherization of the cerebral lobes*; 2, *Etherization of the annular protuberance*.

“13th. Ether is only preventive of pain when it acts on the annular protuberance.

“14th. In animals which have suffered etherization of the annular protuberance, this organ always recovers its functions as the perceptive centre of tactile impressions, before it becomes itself a sensible organ.

“15th. The course of the phenomenon of etherization is far from being the same in men as in animals.

“16th. The process of *de-etherization* of the annular

protuberance may begin while *etherization* of the cerebral lobes still continues. This explains the cries that take place towards the end of some operations, which commence amid the most perfect quiet; cries, however, of which the patient retains no recollection on awakening.

“17th. The *true surgical period* corresponds to that of *etherization of the annular protuberance*, or absolute insensibility.

“18th. For some time after the faculty of sensation is restored in etherized animals, there is transient exaltation of the sensibility.

“20th. At a particular period of the experiments, the blood becomes almost black in the arteries. *Insensibility* always *shows itself previous to this occurrence*.

“21st. If, after the point of total insensibility, inhalation is continued, the animals (rabbits), *cæteris paribus*, die within the space of from six to twelve minutes.

“22d. On the contrary, on mixing a greater quantity of air with the vapour, the period of insensibility may be kept up a long time (three-quarters of an hour and more) without injury to the animal's life.*

“23d. Ether introduced into the stomach does *not* produce insensibility in animals.

“24th. In etherization, the functions of the *ganglionic nervous system* appear to be over-excited, and this

* It would appear, from the above 21st and 22d propositions, that these experiments were carried on by means of an instrument calculated to exclude the atmosphere as much as possible. It was by such a course that the valuable horse in London, and the mouse alluded to in the “Lancet,” were sacrificed to the cause of science.

system appears to become a sort of *diverticulum* for the nervous power which has, for the time, abandoned the *cerebro-spinal system*.

“25th. The death of etherized animals is, perhaps, owing to a sort of asphyxia, originating particularly in the respiratory nervous centre.”

PSYCHOLOGY,

CONSIDERED IN CONNECTION WITH ETHER INHALATION.

THE peculiar sensations and actions induced upon different persons, and also upon the same individual, under different circumstances, have been noticed as a striking feature of ether inhalation, more particularly since its adoption into the practice of surgery, than when used ostensibly for no other purpose than that of a momentary excitement. This will be accounted for in two ways:—1st, The ether was never so universally used; and when used, seldom if ever carried to a perfect narcotic or unconscious state. 2d, When taken for the purpose of amusement, it was not generally given by one whose attention was likely to be at all engrossed with the subject; but, on the contrary, it was most generally superintended by the party as a whole, in a manner quite too democratic to allow any one sufficient opportunity to analyze or to arrange all the causes which led to the effects witnessed.

The effect of the ether upon the mind will be better understood, when we take into consideration these external and incidental causes; and, in order to do so, I shall arrange this portion of my subject with a series of illustrative cases, under the three following heads.

I. OBJECT IN VIEW OF TAKING THE ETHER.

II. PREVIOUS CONDITION OF THE MIND.

III. INCIDENTAL SUGGESTIVE CIRCUMSTANCES.

First. The object for which we inhale the ether is, of itself, much of a dictator as to any outward demonstration of its mental effects, even when taken to absolute unconsciousness.

CASE I. Many years since I was present at an exhibition of amusement, in which the nitrous oxide gas was used. A young gentleman took it, who was passionately devoted to the study of languages. So strong was his desire to obtain a correct pronunciation of the French, he would stop in the street and appear to have his attention taken with articles exposed in a shop-window, whenever two Frenchmen were stopping to converse. His diffidence and acute sense of propriety as an eavesdropper, never allowed his attention to be taken to the subject-matter in discussion: all he wanted was idiom, intonation, and gesticulation. These he obtained, and so perfectly, that when under the influence of the gas, he gave utterance to his feelings in the French language with such purity as to lead Frenchmen present to hail him as a fellow-countryman.

This young gentleman said to me that he had no idea of speaking when he commenced inhaling, and he trusted entirely to the *chances* as to what he might do. Every one who knew him was ready to admit that the chances were—*he would talk French!*

When the ether is taken at convivial parties, the prevailing disposition is to dance or sing. If taken by a graduating class at college, a large amount of eloquence is suffered, as a matter of course.

CASE II. In the winter of '46 and '47, a young man, a student of medicine, took the ether at my house in the presence of several medical gentlemen, some of whom filled the chairs at the school at which he was attending. His object in taking the ether was to experience its effect upon himself, as he had chosen this subject for his *thesis*, in view of graduating; and he was led to believe that he could prepare a better paper from the advantage such experience would afford him.

Under its influence he was as solemn as though he was really under what is commonly called "*a quiz*;" but what influence the motive for taking it, or the presence of his preceptors had, I shall leave for others to infer.

CASE III.—One of the most beautiful experiments I have ever witnessed, illustrative of the controllable effects of ether by the motive for its use, was at the residence of a friend in Spruce Street, about two years since.

The ether was sent for, to be used by one of the ladies who was suffering from irritation of the throat, and attended with cough. In the course of the evening it was desired by one of the company that a certain gentleman present should inhale it for the amusement of all assembled. To this proposition the gentleman somewhat demurred, stating that he was not afraid to take it, but as nothing was the matter with him, there could be no object beyond idle curiosity, which he felt no inclination to indulge at that moment. I explained that a good motive could be found for his taking it, if he felt willing to assist in a little experiment.

It had so frequently happened in my practice that my patients had expressed to me their utter impossi-

bility of doing any way different from what I directed them to do, as, for example, if they attempted to get out of the chair, my saying "sit still," to them was a law too potent for them to think of breaking; or if they inclined to laugh, my suggestion of "perfect quiet and calmness," was as instantly obeyed,—it occurred to me to propose the following experiment. One of the ladies was to administer the ether to this gentleman, with the express understanding that he was to obey any directions she might give him while under its influence, if, by possibility, he could do so.

The ether was inhaled sufficiently to secure a painless operation, had it been necessary to extract a tooth; and the lady immediately asked him "What o'clock is it?" His hand was carried to his vest pocket to remove his watch, he hesitated a moment, and then carried his other hand to the same place. He soon changed his hands very rapidly in the vicinity of his watch, but did not take it out. Whilst doing so, the lady requested him to *sing*. The gentleman was known to possess considerable musical powers, but the noise he made resembled more the howling of a wolf, than anything else I could liken it to. He then whistled about as much of a tune *as he sang*; but soon stopped, and getting up, made castanets of his fingers, waltzed around his chair, and resumed his seat. The ether passed off. The gentleman put his hand to his head and exclaimed, "Oh! heavenly!"

When entirely restored to himself he gave this explanation. He knew everything that had transpired. When the lady asked him the "time," he was not prepared for the question, and felt somewhat confused,

but recollected that he was to obey this lady. In feeling for his watch it occurred to him, *as he could not see*, it would be folly for him to take it out, and he moved his hands about to indicate that folly. When requested to sing, he was equally taken by surprise, if not more so than at first; for he was not quite clear in his mind that he had complied with the lady's first requirement, or that she fully understood him. Still he felt a binding obligation to do his best. *What to sing*, became now a serious question with him, and the noise he made was trying his voice. He was aware that there was no regularity or gradation of sounds, but could not help it. In his anxiety to obey, and finding he could not sing, he attempted to whistle. Here he was as much at a loss for a *tune* as at first, when a lucky expedient presented itself,—“If I dance and keep time,” he thought, “she must be satisfied that I have done all in the way of music it is possible for me to do;” and this gentleman attributes a large share of his happiness to being able to accomplish the dance. He likewise asserts that he knew of no one being present but the lady who administered the ether. He saw nothing in the room, and did not know where he was until the ether passed off.

CASE IV.—A gentleman from Kentucky called upon me to have a tooth extracted on each side of the lower jaw. When placed, as I thought, sufficiently under the influence of the ether, I removed one of the teeth. He groaned as if in much pain. I gave him more ether, and removed the other tooth. He groaned as before, but jumped up and exclaimed “Glorious!” He said he had not been hurt in the operations; he had no recollection that I repeated the dose of ether; remem-

bered the pulling of *both teeth*, and knew he groaned. He said there was no other reason for the groans than the knowledge of the fact, that his teeth were being extracted. His mind was so pre-occupied with this idea, and the horror of teeth extracting, that he supposed his groaning to be a necessary accompaniment.

Second.—*Previous condition of the mind* undoubtedly has a large influence upon those who are placed, either fully or partially, under the power of the ether. To such an extent have I noticed this feature, I can almost invariably tell my patients what will be its mental effect, by a few minutes' conversation with them previous to administering it. Even in the same subject, where its effects have been totally different under apparently similar circumstances, at different times of inhaling, I could readily assign the reasons, without knowing any of the *facts* in the case. The few instances which I here report, I hope will not only serve to illustrate, but have the effect to secure pleasant dreams by establishing a confidence among the timid, and causing the thoughtless to act a nobler part than that of alarmist.

CASE I.—A lady desiring several teeth to be removed, and fearing the ether about as much as the operation, visited me for the purpose of first obtaining my assurance that the ether would not kill her, and next, to take it with but half her doubts removed. This lady had been so situated as to hear nothing but the most alarming stories upon the subject; and the most favourable account she seemed to have received, was, that a few had lived to bear testimony in its favour. I believe she looked upon me as another "*Acres*," and that I killed my man a week. She was accompanied by a gen-

tleman who knew nothing about the ether, and was much opposed to her taking it. This gentleman was to act the part of protector, and see that I did not give her too much. I told this lady I would remove her teeth without her feeling pain, but that she would have an unpleasant dream. I gave the ether, constantly endeavouring to allay her fears and keeping the gentleman quiet. I extracted four teeth, she screaming quite loud, and in less than a minute afterwards she told me she had not been hurt, but *thought she was dying*. The gentleman nearly fainted, and partly fell over.

In a subsequent conversation with this lady, she laughed most heartily at some of the absurdities of the scene, and is now satisfied that the ether must take rank among the greatest blessings of the age. She also assures me that she should take it again without fear.

CASE II.—Among a large number of similar cases, it is only necessary for me to relate one in this place, in order to show the happy influence of ether under the most favourable circumstances. To secure this, the most implicit confidence must be had in the ether, and in the person who administers it. The mind should be as free from excitement of all kinds as possible, and the close attention to all the directions given for its inhalation, serves much to secure a perfect quiet, and to remove, to a great extent, the idea of a subsequent operation.

A young lady, about 20 years of age, the charge of whose teeth I had had for several years, found it necessary to lose the first inferior molar tooth on each side of the jaw, and called upon me to take the ether for this purpose. I requested her to have but one removed at

that time, and wait a few days for the jaw to heal, thus enabling her to reserve one side for the purpose of a better mastication. She proceeded with the inhalation in perfect confidence; a perfect quiet ensued until the tooth was removed. When she was aware that it was out, she arose from the chair and said all her sensations were delightful. Seeing that she was then becoming excited in her anxiety to relate her sensations, I requested her to sit down and keep quiet for a minute, as some reaction might be expected. She closed her eyes for a minute or two, and then observed that it had entirely passed off, and her feelings were now natural.

When this lady called the following week to have the operation completed, she was accompanied by her aunt, who was desirous of witnessing the ether effects, as described by her niece. We proceeded as before, but on attempting to extract the tooth, she exclaimed that I should not, and got up from the chair, seeming much offended. She took her seat in another part of the room, and observed that she did not like me, calling me by name, and that she should never allow me to extract that tooth. In a minute the ether was off, and she was much astonished at finding herself so remote from the position she occupied when she fell asleep. I requested her to postpone taking the ether for a few days, when she would probably feel in better humour for the operation. She acceded, and left.

In less than an hour after this patient left my office, she returned and stated that she would then be etherized and have her tooth out. She explained to me how she was fully sensible that the presence of her aunt had

an unpleasant influence ; *she felt as though she was on exhibition.*

Being satisfied that this was the cause, and only cause of the recent failure, I proceeded to administer the ether again, when its effect was precisely similar to that of the few days previous.

CASE III.—The present case, like the last, I had an opportunity of testing twice, and for the same reason as there reported, to avoid having both sides of the jaw lame at the same time. This was a Miss about 17 or 18 years of age, who was learning the millinery business of Madam B., in Eighth Street. It serves to show the contrast between a total ignorance of all reports upon the subject of ether, either for or against its use, and the effect of *prejudice* upon the mind of one and the same person.

When this young lady presented herself at first, she knew nothing of the ether ; but, as most of my patients require it, I proceeded to give it, without thinking it was at all strange to her. She merely asked me what it was, and what it would do. I saw no excitement in her mind whatever ; and I only said to her, "It is ether ; by breathing it a minute or two it will not hurt you to have your tooth out." She did so ; and stated, after a minute's sleep, that it seemed to her as though it was some hours since she began to inhale it. She had neither pain nor any dream. Her whole conduct, after knowing that her tooth was extracted, showed that she supposed this method was an old established usage, but that she had not been so situated as to hear of it before. No comments were made by either of us. The *quiet* of the thing was a novelty in the course of

my ether praetice, which I felt no inelination to disturb; and she left, with the understanding that she would come to have the other extraeted in a few days.

About a week afterwards Miss —— called, and brought with her Madam B. I proceeded with the ether as upon the former oeeasion, and when she was similarly affected, I attempted to extraet her tooth. She resisted; I gave her more ether. She soon struggled to avoid taking any more, and attempted to get up from the ehair, appearing alarmed. I immediately turned to Madam B., and inquired of her, “Who has told this girl that she did wrong in taking the ether?” Madam B. replied, in much astonishment, “Not anybody.” At this point the ether passed off, and the girl wished to know if the tooth was out. She put her finger into her mouth, and, finding the tooth still there, expressed much disappointment. I then put the same question to her, with this addition, “Did any one say to you that ether would kill you if you breathed it?” She looked a moment earnestly at Madam B.

Madam B. “Did anybody?”

Miss ——. “I will tell you if no trouble shall come of it.”

Madam B. “Oh no, it must have been thoughtlessness, and no harm intended.”

Miss ——. “On going home the other day, one of the girls (calling her by name) smelt my breath, and asked me where I had been. I told her, and she said *I was a fool, and that ether killed folks*; but I did not let it trouble me, and I felt no ineonvenience from having taken it.

Now this young lady was by no means “a fool;” on

the contrary, she possessed a large share of common sense. She had experienced the benefit of the ether in her own case, and she at once concluded that her experience was worth infinitely more than any idle *rumour* that might reach the ears of her alarmist. In possession of her full faculties, she repudiated the idea that any respectable man would deliberately give her anything to breathe, which would be attended with immediate risk to her life or health. However qualified this lady might have been to reason the case in her natural condition, it would be extremely difficult to resist the influence of an idea growing out of such a remark, while under ether modification.

CASE IV.—A married lady, residing in the country, about twenty-five miles from Philadelphia, visited me in the summer of 1847 to avail herself of my services, and to take the ether for the purpose of having two or three teeth extracted. She was very doubtful if the ether could be made to affect her in any way whatever. She entertained no fear about inhaling it all day long if I would administer it; but, as she said to her husband before leaving home, her whole uneasiness seemed to consist in the idea that *she* should be the exception to the general rule. She had tried mesmerism “faithfully,” and wasted many hours in fruitless attempts to be brought under its influence.

This lady brought with her a nursing infant. Her health was delicate, but she possessed no organic derangement that would interfere with her inhaling very largely of the ether. I administered it in the most condensed manner, i. e., from a glass receiver, constantly agitating it, and allowed her to breathe it for

about fifteen or twenty minutes. I could not perceive that it had the effect of changing her pulse, her breathing, or her reasoning faculties in the least. I requested her to wait a little while, and rest upon it. She became much concerned, wept and wrung her hands in great agony, that she should be so constituted as not to be susceptible, like others, to its influence.

After about ten minutes' suspension of the use of the ether, I proceeded again in a similar manner, and about the same length of time, with no better result. Her system was completely filled with ether; so much so, that I feared somewhat its effect upon her child. I, therefore, requested her to abandon it for the time; to note what influence (if any) it had upon her infant, and to call upon me the next day, when I would make another effort, and I hoped with better results. In the mean time, I requested her to discard, as much as possible, the notion that it would be a failure in her ease in particular. I saw no reason why it should be, and encouraged her to hope for a happy effect in the morning. I requested her to call upon me the next day at 9 o'clock, to eat a light breakfast, *and to come with confidence.*

At the time appointed, June 4th, my patient came. She said she felt quite well—had slept well—also her infant. My greatest astonishment was, that she had wakened in time to fulfil her engagement. I observed to her that I was pleased to see her so calm upon the subject; that I had no doubt a good night's rest, and the difference in the time of day, would enable us to succeed far better than upon the previous trial. She inhaled the ether less than ten minutes. Her head

rolled over upon one side, and she was sound asleep. I then extracted two teeth, cut off the crowns of two others, and destroyed their nerves with a broach; when she awoke, and was in an ecstasy of joy at learning what had been done.

On the 7th of the same month, I etherized this lady again, and extracted another tooth for her without the least trouble. If half the blessings she invoked upon my head ever reach me, I shall be a happy man.

Third.—*Incidental circumstances* serve very much to suggest thought and action on the part of those who inhale the ether, whatever may be the motive for which it is taken. A word spoken, the slamming of a door, the passing of a carriage in the street, or the noise in the ears, induced frequently by the ether itself, will lead the mind of the etherized not unfrequently into the strangest vagaries. These are often turned to account by the patients, according to their preconceived notions in regard to the ether, as has been shown in a previous place; hence the necessity for discrediting the various bugbear stories so frequently told in relation to the ether, and the cruelty in circulating them.

CASE I.—Among the very first of my ether cases, in 1846, a young lady called, in company with her mother, to have a tooth extracted. It was at a time so early in the ether practice, that no prejudicial stories had been circulated in regard to it, and the young lady apprehended no evil from it. Her mother was not prepared for any other exhibition of its power than that of inducing a perfectly quiet sleep.

This patient inhaled the ether very well, and was soon brought under its influence. In proceeding to

extract the tooth, I found great difficulty in getting her mouth open, and was occupied in this attempt long enough to have enabled me to extract, probably ten or a dozen teeth. Just as I succeeded in placing the forceps upon the tooth, she cried out, "Stop pulling! stop pulling!" I paid no regard to this, however, but *pulled* the tooth. She rose from the chair in much excitement, and would have fallen to the floor, but I caught and sustained her for a moment, when the ether instantly passed off.

The mother of this young lady was, as a matter of course, very much alarmed; she walked thro room, and knew not what to do. When her daughter recovered consciousness, and saw the effect upon her mother, she exclaimed, "What is the matter, mother! what ails you?" "What ails *me*?" said her mother, "hasn't the doctor murdered you?" To which the daughter replied, that she had not been hurt, and was greatly surprised to find that her tooth was out.

This young lady dreamed that she had made a voyage to Europe; was on her return home, and was about being wrecked on our coast. She saw the rocks and breakers ahead, pieces of broken spars floating, and men struggling in the water. She cried out to the man at the wheel with all her strength, to "stop pulling!" (She mistook the guiding for the propelling power of the ship.) Here she awoke.

I account for this dream in the following manner:—It is probable, while I was engaged in placing the instrument upon her tooth, there was a moment of semi-consciousness of the fact on her part. In that case, her first cry would have been not only natural, but ap-

pliable to the ease. She instantly became oblivious to everything but the sound of her own voice. The words uttered, suggested the dream, and the second time of her saying "stop pulling" had reference to the dream alone.

CASE II.—One of the most frequent and uniform effects of the ether, is a peculiar rattling noise in the ears, very much resembling that produced by a train of railroad cars when in rapid motion. So much so, indeed, we can often suggest a pleasure excursion by this means of travelling, and thus secure a pleasurable dream.

I have been led to observe that all who are subject to this noise when etherized, are also enabled to *hear* the beatings of the pulse whenever they lay their heads upon the pillow, lying upon the ear, and thus shutting off all external sounds from that ear. This condition pertains to about 50 per cent. of those of whom I have inquired among my patients, during my investigations upon this subject, and I have never known it to vary. All who do not hear these sounds, never hear their hearts beat under the above circumstances.

This hearing of the pulsation, is dependent upon the anatomical construction of the internal ear. In some, the *internal carotid* artery is located so near to the *tympanum*, or drum of the ear, as to be reached and pressed upon by that membrane, whenever the air is confined within the more external chamber; in others, the artery is too remote to be affected by this means. This fact led me to suppose at first, that the noise heard when etherized, was the pulse alone; but the rapidity of the beats, being so much greater than any healthy pulse, seems to forbid this conclusion, and connect with

it the idea of *external noises*, possessing considerable influence in this phenomena. Let the causes be what they may, such are the facts.

Mr. E——, a dentist of good fame, now established in Paris, brought his wife to me on the eve of their leaving their native country, for the purpose of having me extract three teeth for her. The ether was inhaled to entire unconsciousness. I observed that I should send her to Europe in advance of the real voyage, and I wished her to tell us how she liked Paris. She began to hear this rattling noise; I likened it to a locomotive. She slept till I removed the teeth, and when she awoke she said she had travelled by railroad, not only to Paris, but over the whole world! she had seen nothing but cities, and heard nothing but the noise of the cars.

CASE III.—An Irish woman, who had never heard of the ether previous to calling upon me for the purpose of having a large molar tooth extracted, took it on being told that she would suffer no pain, and would, *probably*, have an interview with her friends in the old country. Just as its influence commenced, I remarked to her that I should like her to observe what occupation her friends were engaged in, if she succeeded in finding them. I removed the tooth; she moved not a muscle of the face, but remained as in a quiet sleep, for about one minute. Upon opening her eyes, she exclaimed: "I have seen all my friends; they were engaged in spinning; and don't I hear their wheels now, sure?" She said it appeared to her as though she had been absent many months. She recollected that she went home in a steam vessel, heard the noise of steam and machinery, declared

herself unhurt by the operation, and wished me to see if there was not "*another tooth what wanted to be drew.*"

It appears in this case that the noise in the ears served a double purpose; 1st, as a means to get her to Ireland, and 2d, to suggest to the mind the occupation of her friends. This noise continued for a moment after her return to consciousness, and so strong was the impression, she really thought she heard the noise of their spinning wheels across the Atlantic.

CASE IV.—Master C——, a lad about 12 or 13 years of age, came to have a tooth extracted; he took the ether very well, and did not know when the operation took place. When he began to recover, I requested him to spit out the blood into the basin, but he looked up at the wall, into the corners of the room, and stretched his head far back, looking over his shoulders very earnestly. I asked him what he was looking after, what he expected to see? He said he wanted to find the machinery. I showed him the instrument, and observed to him, "this is all the machinery I used." He then smiled, and observed that he thought he was in a cotton mill.

A few days after this I removed another tooth for this lad, when the second effect of the ether and his ideas were identical with its first exhibition.

CASE V.—At a very critical moment of etherization, my office door closed with quite a loud noise. The lady started and said, "Who fired that gun?" While in the act of removing the tooth I answered, "Boreas."

This lady dreamed that she had been absent from home many years; was now returning, and the friends

of her youth were welcoming her with noisy demonstrations of joy. She distinctly heard music, was delighted with everything, but much annoyed *at the firing of the gun.*

CASE VI.—A little Miss, whose father is engaged in the coal business, called on me and inhaled the ether. I extracted a large permanent tooth for her. The roots of this tooth were very much spread apart, and when it left the socket of the jaw it made a report like drawing a cork suddenly from a bottle.

I attempted to give this little girl a pleasurable railroad excursion, and accordingly directed her attention to this subject when the noise commenced in her ears. The instant the tooth was drawn she sprang out of my chair, and crouching upon the floor, looked up anxiously at me, and inquired if anybody was killed. I lifted her up, and answered, "Oh no, my dear, there is nobody hurt." She expressed herself much delighted, said she thought she was at Pottsville, and desired to come home, that no passenger cars were coming, nothing but a *coal* train, and, consequently, they gave her in charge of the engineer, who placed her upon the top of the locomotive. As soon as they started the boiler blew up, and she was thrown high up upon an embankment, but was not hurt.

All this was told under considerable excitement. I soothed her, and requested her to shut her eyes and keep quite still for a few minutes, saying at the same time, "You made a mistake; you should have waited for the passenger train." She slept again, in perfect quiet, without inhaling any more ether, for about three or four minutes, and awoke perfectly calm and refreshed,

saying she had enjoyed a delightful ride. Supposed it all to have been *one dream*. Had no recollection of having wakened, and relating to me the first dream; and did not know that she had been out of the chair.

There appears to be a train of suggestive circumstances in this case, altogether too strong to admit of a doubt as to their influence upon the mind of the child. It was a very natural mistake that she should make, when we consider that her father was interested only in the *coal trains*. The noise produced by the extracting of her tooth might well be likened to the bursting of a boiler, and her falling upon the floor to that of being thrown upon the embankment.

CASE VII.—A gentleman came to take the ether for the purpose of having some teeth extracted. His wife came with him, "Merely from curiosity," as she said, "to see how it would make him act." When etherized, he threw up one arm and one foot, *upsetting my footstool*. I extracted a tooth, upon which he exclaimed "high!" Seeing that his mouth continued wide open, I removed another, when he said "diddle!" Again, I took out the third, when, in saying "did," he came to himself, and thus explained his feelings. He thought he was at home, singing his boy to sleep, and had a very vivid recollection of having turned over the cradle. His wife said "she never knew him to tend babies anyhow, and if he did, they had no *boy*."

CASE VIII.—A little girl was brought to me for the purpose of having a few temporary teeth removed. She was accompanied by her parents and a younger sister. She was a timid child, and, finding myself placed in the midst of a very nervous family, I endeavored

voured to prevail upon the little Miss to allow me to extract the teeth *without* the ether; assuring her that it could be done with comparative ease to herself, as they were shedding teeth, possessing little or no roots. This idea she repelled with much indignation. The child's mind was bent upon the ether; and I verily believe she would have taken it at my hand, had I assured her that she would never awaken from her sleep, rather than submit to the operation without it. In this condition of things, anticipating considerable excitement, not so much from the ether as from the amount of sympathy present; I requested the family to keep perfectly quiet, and assured them the child would not be hurt, whatever demonstration of pain she might make. I proceeded with the ether; its effects were delightfully soothing,—but just as she was about to pass into unconsciousness with a smile upon her face, her mother exclaimed, “Don't give her too much, Doctor!” In an instant the child *was* alarmed; I had only time to remove one tooth. She gave a loud scream, and struggled very much. The mother and sister ran out of the room, crying, if anything, a little louder than the patient. The father insisted upon my stopping, which, under the circumstances, I was very glad to do. In less than one minute the ether passed off. The little girl was astonished that a tooth had been drawn; had a confused recollection of having made an outcry, and no knowledge of struggling or of suffering. Her account of the matter was, that she was having a delightful dream, but that some one vexed her. The next day I gave her the ether again to remove two other

teeth; she came with her father only, and both were much pleased with its effects.

CASE IX.—A gentleman from Chambersburg visited me with his wife for the purpose of employing my professional services. They had just previously been passing a few days at Cape May.

When I gave this lady the ether, her husband suddenly made the same remark as mentioned in the last case. I checked him, fearing it would affect her confidence in me. She was giving every manifestation of pleasurable sensations, but the imprudent observation reached her ear *just as she was going into the surf!* Something was the matter, she did not know exactly what: her mind had been occupied for the last month with this teeth-pulling business. Her pleasures had been ministered to by her bathing. It is not surprising that she should associate the two together, when brought under the influence of ether. She dreamed that while in the water she was attacked by a shark. There was a good deal of excitement, but she felt no pain, although the hold of the monster was so firm, the company present were obliged to extract his teeth before she could be liberated.

CASE X.—The following will show the importance of strictly following the directions, as far as the effect upon the mind is in question. A gentleman desired me to send him upon an excursion while undergoing an operation. When the noise commenced in his ears, I desired him to get into the cars and depart. He became serious, and I asked him if the effect was not pleasurable? He said "No, not very." I told him to endeavour to fix his mind upon pleasurable things, but he

made no reply, and continued to indulge in the gloomy mood. Upon returning to consciousness, he said he had been through Heaven and Hell! He expressed no horror at the jaunt he had taken; would rather go it over again than to have a tooth out without the ether. Was satisfied that he had not followed my directions to the letter, as there was no *railroad* established to either of the places he visited.

CASE XI.—It is not unusual for the person who is etherized for the purpose of undergoing a surgical operation, to suppose that this very operation is being performed upon some one else; that they are mere spectators to the scene; and, if they suffer at all, it is only from sympathy. The three following cases will illustrate this clairvoyant condition, together with the influence possessed by the person who properly administers the ether.

Among the patients at the Jefferson Medical School of this city, to whom I have given the ether, was a man, about 38 years of age, who required his arm to be amputated at the shoulder-joint, for a tumour of great extent upon the arm (*fungus hæmatodes*). The operation was performed by Dr. Thomas D. Mütter, before a class of nearly six hundred students and medical men.

Previous to the patient's entering the operating-room, I requested him to give me his entire confidence in taking the ether; to hear nothing that might be said during the operation, unless spoken by myself. But, if he comprehended any question that I might put to him, I wished him to answer me.

During this formidable operation, the patient manifested a slight symptom of pain. He was well under

the ether influence. I said to him *in a whisper*, "How do you feel?" He answered, "Pretty comfortable, only a little cold." (The shirt had been taken off, and the door being open, this was his only uneasiness.)

At a farther stage of the operation, when the arm was entirely removed from the body, with the exception of a small portion which contained the *brachial artery*, Dr. M. addressed the audience in a loud voice, and explained to them that he was now about to separate this only connecting link. At this moment I inquired, "Do you hear anything that is being said?" He replied, "No, I hear only a confused buzzing sound, but cannot understand it."

This man was happy, when the ether passed off, at seeing his arm upon the table some six feet distant. He made a rapid recovery, and is now well.

CASE XII.—Another operation (plastic) was performed by the same gentleman, in his private practice, upon the brow of Mr. T., a dentist of this city. My services, as a friend of the parties, were required in the ether department. During this operation, which continued just one hour, there was considerable conversation carried on, but no remarks addressed to the patient in particular. When the ether was allowed to pass off, there was some excitement on the part of the patient. He was very desirous of explaining all his feelings at the moment. This I would not allow, but desired him to keep perfectly quiet, to lie down and sleep awhile, and then we would hear all he might have to say.

A few days after the operation, I called on Mr. T. He had never heard of the clairvoyant properties of the ether, and naturally enough supposed he had discovered

something new in relation to it. He said, although his eyes were shut, he saw every cut of the knife. He saw the shape of the wound upon the forehead; and, what was better than all, this cutting appeared to him to be done upon somebody else.

CASE XIII.—A Miss M., from Florida, 15 years of age, attending school in this city, took the ether, and had a tooth extracted. Her dream was a singular mixture of fancy and fact—the agreeable and disagreeable—the idea of going home to visit her parents, and going to the dentist's to get her teeth extracted!

This young lady had got, in her dream, past the "Hole in the Wall," and was becalmed on the "Bahama Banks." Suddenly, *one of the passengers* was attacked with a violent toothache, and it was advised to have it out. All hands gathered around to witness the *fun*.

Now it appeared, in the imagination of my patient, that it took quite a number of the passengers to make up this one passenger, who was to undergo the operation. *One* person constituted a single feature; some of them represented the *teeth*, while Miss M. was to officiate as the *gums*. This was a source of much uneasiness to her. She wished to be the *tooth that was to be drawn*, as that would come out and be at liberty. Besides the gums were to be pressed upon to remove the tooth, and she thought that must be painful. Just as the tooth flew out, and she was left behind, she awoke in great merriment. The reaction of the ether induced a few hysterical tears, but, as a whole, she enjoyed the affair very much.

CHLOROFORM,

AS A LOCAL ANÆSTHESIA.

WHEN I was administering the chloroform by inhalation, in the beginning of 1848, it was my habit to wet a piece of sponge with it about the size of a chestnut, and hold it between my thumb and fingers, to the mouth of the patient, until the desired effect was produced. I was soon led to notice that when I was much engaged with this article, I had a very disagreeable sensation of numbness at the ends of my fingers. This led me to try the experiment of cutting my finger while it was thus affected, and to my surprise, I was enabled to do so till the blood flowed pretty freely with the slightest possible degree of pain. I then made trial of it upon my gums with like success, and felt that I had a pretty good substitute for the ether, in such cases as might present objections to its inhalation. It was not long before a case offered, in the person of a lady who was too timid to have a tooth extracted, either with or without ether, and I pursued this course:—After pencilling the gum around the tooth with chloroform for about a minute, I began to lance, and cut sufficiently to make it bleed. She said she scarcely felt it. I then applied more chloroform to the wound, waited another minute, and cut deeper, with similar results. Another applica-

tion of the liquid allowed me to force the forceps almost to the end of the roots, and the tooth was removed. The tooth was firmly set, but the lady observed that the operation was painless.

In many other cases which followed, the success varied too much to make it altogether gratifying. In some it failed entirely; and frequently it would be necessary to apply it so long, that the patient would be more or less affected by it, through the medium of the lungs. It occurred to me that the absorbent vessels might, in many cases be too sluggish in their action, and that they might be stimulated by an application of kreosote. I used this article in connection with the chloroform, and am inclined to view it as an improvement over chloroform alone.

Pain arises from various conditions of the teeth, and there can be, as a consequence, no one universal tooth-ache remedy. I have applied the chloroform upon the exposed nerve of a tooth, and it has increased rather than mitigated the pain. It is probably used to the best advantage in suppurative cases, and often in inflammations leading to that condition.

A letter from my son contains an account of a case, of sufficient interest to justify the following extract:—
“While in Valparaiso, I got a small, but long and hard thorn in my finger, at the root of the nail. I partially extracted it, thinking I had it all; my finger festered, swelling much. I bathed it in lye-water, poulticing it, and was fearful of a felon; but seeing a black speck, I attempted laying the finger open; the pain was excruciating on account of inflammation, but as soon as I brought blood, I applied a drop or two of chloroform.

I then laid it open nearly to the bone, and about one inch in length, taking out even more of a thorn than at first, *and not feeling as much pain as I should had I operated upon some other person!* I then bandaged it, and allowed it to heal in the blood. At the end of the week I removed the bandage; the finger was well, and I saved the nail. *What was the value of that chloroform to me?"*

Dr. Isaac Hays reports a case of neuralgia of the foot, before the College of Physicians, Philadelphia. It is found in the "*American Journal of the Medical Sciences*," p. 550. Dr. Hays stated, "that he had employed the chloroform to produce local anæsthesia, with apparently the most happy effects, in a case of neuralgia, occurring in a gentleman 50 years of age, who had been for a long time a sufferer from neuralgia of the foot, in which all the remedies that had been previously employed, failed to produce relief. Dr. H. was called to this patient about eight days since, and found him in intense pain, which had deprived him of sleep the whole of the preceding night. Dr. H. directed the affected parts to be enveloped with a pledget of lint, or a few folds of muslin wet with chloroform, and the whole to be covered with a portion of oiled silk, to prevent evaporation; on the next morning he found him entirely free from pain, which has not since returned. Whether the relief experienced in this case is to be ascribed to the local anæsthesia produced by the chloroform, or is to be considered as a mere coincidence, Dr. H. does not pretend to decide."

"Since this communication was made to the College, the further history of this case, has shown that an arrest

of the paroxysm is always accomplished by the application of the chloroform; and by the use of the article, several other similar cases have been attended with like results."

The following case illustrates the value of chloroform thus used:—A lady for whom I had filled a large number of teeth, was much troubled by an abscess forming at the root of one of the incisors. It would occasionally become very painful; swell and discharge; when relief would ensue for several weeks. I had frequently treated this case with much care, till finding all accustomed remedies failing, and the annoyance becoming insufferable, the patient concluded to have it extracted. I stated to her that the local application of chloroform might give her one more chance of retaining her tooth, if used at a proper moment. I chose for that time, the earliest symptom of disquiet in the region of disease. The result has been immunity from pain, and the tooth is restored to its former usefulness. It has now been necessary to pursue this treatment but four or five times, at periods varying from one to two months, and the gums present a healthy appearance intermediately.

ANÆSTHESIA IN MIDWIFERY.

ETHER and CHLOROFORM have both been used in parturition to such an extent since their discovery, as to render it unnecessary for me to do more than advert to the subject.

I have, upon a previous page, said all I have to offer by way of apology for thus (apparently) interfering with a department foreign to my immediate profession, and would recommend to all who are desirous of obtaining information that must add much to their happiness, to read the works furnished by Professors Simpson of Edinburgh, and Channing of Boston, expressly on this subject. These two gentlemen, than whom none stand higher as accoucheurs (in Europe or America), each report a list of more than five hundred cases wherein these articles have been most successfully used, and in no one instance have they been productive of injury.

Religious objections have been urged against the use of ether in no department so strongly as this; and that, too, by those who have not sufficiently heeded the primeval curse to let nature take her own course. Opiates, instruments, laxatives, and stimulants have been resorted to ever since civilization commenced, and no one's conscience has been disturbed in the matter. Who shall decide as to the precise amount of pain necessary to satisfy the demands of a "violated law?"

Surely you may be allowed to spare yourselves all the pain you can, particularly such pains as are attended with risk to your lives and the lives of those whom you are about to bring into existence. Embrace every agent God has been pleased to give you for this purpose, and seek consolation in doing good to others.

The two following paragraphs, taken from "Simpson's Anæsthesia," pp. 125 and 6, abound in argument, and will, no doubt, remove all objections from the minds of those who are so constituted as to be influenced by any course of reasoning. In a letter to Dr. Protheroe Smith, of London, he says:—

"Some of your London medical divines, however, argue, I hear, that '*etzebh must* mean pain, and that, meaning such, the curse must be taken *literally*; and hence that woman *must* be allowed to go on suffering. In the pamphlet referred to I have attempted to answer this by showing that then we, of the sex of Adam, must adhere literally also to the words of the curse, as far as they apply to us, and hence must earn our bread by the 'sweat of our face,' and by that only. Nay, the very physicians who thus insist on reading and acting upon this and other texts literally—and literally only, forget, I fear, (that according to their own doctrines) in practising physic they are really and truly practising a profession of sin and iniquity, in so far as man in the primeval curse was doomed to die, and yet they daily and hourly persist in attempting to make him live. An esteemed clerical friend, in writing to me on the matter, stated that he was afraid *his* cloth was perhaps even more sinful than ours, if this outrageous view were true, for the introduction of sin was the consequence of the fall, and the church, in labouring to

banish and abrogate that effect, in trying to turn mankind from sin, were actually trying to cancel the greatest and most undoubted effects of the first curse upon the human race.

“But the accoucheurs and surgeons among you who object to the use of chloroform, on the ground that it goes, in their opinion, against the object and end of the primeval curse upon woman, strangely forget that the whole science and whole art and practice of midwifery is, in its essence and object, one continuous effort to mitigate and remove the effects of that curse. By warm baths, aperients, regulated diet, &c., they attempt to destroy the intensity of the approaching pains and penalties of childbirth; during labour they use counter-pressure on the back to relieve the intense pains there; they use unguents, perineal support, venesection, &c., &c., to ease the pains, and insure the safety of the mother. By these means they succeeded partially, in times past, in mitigating the sufferings and effects of parturition, and thought they committed no sin. But a means is discovered by which the sufferings of the mother may be relieved far more effectually, and then they immediately denounce this higher amount of relief as a high sin. Gaining your end, according to their religious views, imperfectly, was no sin; gaining your end more fully and perfectly is, they argue, an undiluted and unmitigated piece of iniquity. To relieve our patients, however, by our interference, a little, and a little only, is assuredly, in a moral and religious point of view, just as sinful as if we succeeded in affording them complete relief from suffering. The *principle* of interference is not altered by the *degree* of relief afforded being more

or less, greater or smaller. ‘For whosoever shall keep the whole law, and yet offend in one point, he is guilty of all.’ If, on religious grounds, your obstetric friends object to relieving entirely a woman of her worst pains (now that they have the means of doing so), they must, on the very same grounds, refuse to relieve her imperfectly and partially of these or any other pains and sorrows connected with parturition; they must, or at least ought to abstain, in fact, from all obstetric practices whatsoever; they should, in short, give up their present profession as a profession of sin, and ‘in the sweat of their face eat bread.’ I can see no other possible alternative for them, provided, that is to say, they choose to reduce actually their theory into practice. If, on the other hand, they think it not sinful to relieve their female patients, to a small amount, from the alleged sufferings entailed upon them by the first curse, then surely it is not sinful in them to relieve their patients from their sufferings to a far greater amount, now that they have the power of doing so,—nay, is it not sinful in them obstinately to withhold that relief? For, ‘to him that knoweth to do good, and doeth it not, to him it is *sin*.’ ”

Many of my female patients, who have depended upon my verbal and written directions, in view of their approaching confinement, have reported to me their great satisfaction and their sense of obligation for the relief ether has afforded them; and in addition to this, they have uniformly concurred in these two important facts, viz.:

First. The *time* of their labour has been shortened from eight, ten, and twenty-four hours to *one and two*

hours; and not unfrequently to THIRTY AND FORTY MINUTES!

Second. Hæmorrhage has never occurred to produce the slightest cause for alarm; even in those cases where great apprehensions have heretofore been felt on this account.

Quite a number have informed me that in every previous confinement, it was necessary that *instruments* should be resorted to. THE ETHER ENTIRELY SUPERSEDED THEIR USE.

CASE I.—A lady who had taken the ether for the purpose of having one or two teeth extracted by myself (against the advice of her family physician), desired me to direct her as to its use in her confinement, which was soon to take place. This lady was the mother of some two or three children, at the time of whose births her life was despaired of for many days. Her labour was protracted and terrible in the extreme; the exertions thus induced, caused such a tendency of blood to the brain as seriously to affect the mind, and this became an additional source of uneasiness to her friends, even should she recover her usual tone of bodily health.

In an interview with this lady, she informed me that her physician was opposed to the use of the ether, and would allow of her taking it upon no consideration whatever. I observed to her that it was of more consequence to her to take the ether than to retain her doctor. “If Doctor —— declines giving you the ether, Madam, Doctor —— and Doctor —— are equally eminent, and *they* will recommend it.”

This lady again sent for her physician, and desired him to say definitely, if he would agree to her taking

the ether. His answer was, "No, Madam." "Then," said she, "I shall have no occasion for your services." "Oh—ah—ahem—yes—that is, yes, Madam, you shall take the ether, *if you insist upon it*, that is, if it don't cause too much flow of blood to the brain!" Here was a doctor too suddenly converted, decidedly. Half the rush of blood to the brain, from the use of ether, would be viewed as more dangerous than twice the quantity from agonizing pain!

A few days previous to this lady's confinement, her mother called upon me, and informed me as to the state of affairs. I then urged upon her the necessity of her daughter's adhering to her determination. I urged her to be present to insist that her daughter should have the ether, "AS MUCH AS SHE WANTED; *rush of blood, or no rush of blood!*" and I further said: "If her doctor is disposed to act the alarmist, you had better put him in the next room with the rest of the children, and allow of no one to be present who cannot be useful."

The ether was used in this case; consciousness was at no time interrupted. In less than one hour, and at the last stage of delivery, the patient was in no pain. The doctor was alarmed at this fact! He said "Take away the sponge." The nurse obeyed, but the patient, understanding it all, *squeezed out the ether from the sponge into the bed-clothes about her*, AND WENT ON BREATHING IT. The *sponge* was given up with a smile of victory at having outwitted the doctor.

This lady says she has been well from the hour of her confinement.

CASE II.—The following case I relate as one bearing the general character of a great many that are almost

daily reported to me. I hear of none that essentially vary from it, when my informants are qualified to speak comparatively on the subject.

A lady who used the ether in her confinement, during the past summer, observed to me that her health had been uninterruptedly good. Her time of labour was thirty-five minutes. She had no pains that could be called such, and no hæmorrhage of consequence. The time between the birth of her first and this last child, was six years, and she had had no child intermediately.

The sufferings of this lady with her first child were of a character to make an impression upon her mind, that she says is as vivid now as ever, *and it never can be obliterated during her lifetime.* In an ecstacy of gratitude at the application of ether in such circumstances, she said she would not object to bearing a child a week, if she could properly provide for such a family.

CASE III.—Among the first cases reported by Professor Simpson, in which chloroform was used, is the following:—

“I exhibited it (chloroform) with Mr. Carmichael, to a patient who had, at her preceding confinement, been in severe labour for twenty hours, followed by flooding. She began the inhalation when the dilatation of the os uteri was half completed. The child was born in fifty minutes afterwards. She was kept under its influence for a quarter of an hour longer, till the placenta was removed, and the binder, body, and bed-clothes, all adjusted. On awaking she declared she had been sleeping refreshingly, and was quite unconscious that

the child was born, till she suddenly heard it squalling at its first toilet, in the next room. No flooding. An hour afterwards she declared she felt perfectly unfatigued, and not as if she had borne a child at all."

The following letter I take occasion to introduce in this place, for the purpose of showing how the subject of anæsthesia is generally viewed by eminent men in Europe; and hope it will contribute largely to establish a corresponding confidence among ourselves. It is from Mr. Lansdowne, of Bristol, England, to Professor Simpson.

"I have now used ether or chloroform in seventy-one midwifery cases; I have two modes of administering it; the one with a bladder, in which is placed a brass pipe with a stop-cock, and into this is screwed, after I have poured the chloroform into the bladder, a piece of elastic tubing with a mouth-piece, the whole being pierced with a bore $\frac{3}{8}$ of an inch, through which the vapour can be readily inhaled. If I find I am likely to be giving the chloroform for a long time, I use this apparatus, both for the sake of convenience, and also of economy, as 3j, will last me nearly or quite an hour with this; and should I use it many hours, it not only effects a great saving of material, but does not so frequently require replenishing, and is always ready at the approach of each separate uterine action, and it may be (as has been the case with me), used by any friends, or by the nurse, should the practitioner require to be absent for a short time. The other apparatus is an inhaler, such as is commonly sold; it is made of a thin pliable lead, adapted over the nose and mouth, having a piece of

perforated zinc in its front, and containing a piece of sponge, over which the chloroform is thrown; the depth of this inhaler is such as to prevent the nose being touched by the chloroform. It is home manufactured, not expensive, and very easy of construction. This latter I make use of if I am likely to be wanting it for a short time only; it requires to be supplied afresh every five or ten minutes, and accordingly, I use \mathfrak{zj} or $\mathfrak{3ss}$, which latter is my quantity when about to extract a tooth. If the action of the uterus causes great pain, as is frequently the case in an early period of the labour with the first child, I commence giving it as soon as the os uteri is sufficiently dilated for the head to pass; I have given it when the opening has not exceeded the size of half-a-crown. I believe it may be given with impunity as early in the labour as we please, and the only obstacles to its being so used that I can see, are the inconvenience to the medical attendant, in being thus occupied with one patient for such a length of time, and also the very great expense which such a lengthened use of it must entail. On the patient's account, I can see no possible reason why it may not be used for a whole day, or even more; indeed, I cannot see why a limit should be set to the length of time in which it may be used. I have no doubt but that it will soon be the anodyne generally used at the latter stages of painful cancerous diseases. The greatest length of time in which I have used it, has been $16\frac{1}{2}$ hours, a fresh inhalation being made at every renewal of the action of the uterus; in other cases I have given it $11\frac{1}{2}$ and 12 hours, and the only reason of the inhalation being limited to this time, has been the cessation of the necessity for its use,

namely, that the child has been born, otherwise it would have been continued until such event had taken place.

“I have found that nearly all my patients have recovered very rapidly; most of those who have had children previously, have been astonished at the unusual rapidity of their recovery.

“I find no difference as to the expulsion of the placenta and the subsequent discharge, when administering chloroform, to what takes place in the usual natural labour. I have, upon two occasions, used it for severe after-pains, pains so severe that their cries could be heard at a considerable distance; indeed they appeared worse than the pains of actual labour; in both cases the pain was completely subdued by its use. Both these persons had determined not to avail themselves of the benefit of the chloroform during labour; neither did they, but they were delighted afterwards with its soothing effects. The former of these, I had long resolved to give it to for this express purpose; it was her thirteenth child; her labours have always been very rapid, scarcely any pain accompanying them, but no sooner has the child been born, than her agony has been almost past bearing, the pain recurring at intervals for a fortnight. Upon this occasion I gave it to her three times within the first ten hours, and she had nothing to complain of afterwards.

“As regards sickness, I have not found that symptom, except where fluid has been previously taken; on the contrary, if the patient has been sick, the chloroform has almost invariably checked it. The cramp I have not heard them suffer from whilst under its influence.

I have never yet met with anything which has caused me to regret having used it."

The two following cases are kindly furnished me by Dr. J. S. Rohrer, of this city:—

CASE IV.—"May 12th, 1850. Late in the evening was called to see Mrs. M——, aged eighteen years, a healthy-looking woman of delicate and symmetrical proportions, in labour with her first child. Her pains had come on early in the day, and increased in frequency towards evening, when she was advised by her nurse to send for me. I immediately hastened to see her, and found her, as described, in labour pains. On examination *per vaginam*, the *os uteri* was rigid, and high up in the pelvis, inclining towards the sacrum, and dilated to the size of a quarter of a dollar. I desired her to bear her pains with patience, and assured her that she would not require my assistance before morning, apprising her, at the same time, of the likelihood of her pains disturbing her all night.

"13th. Early in the morning was summoned to her bedside; the pains had increased in frequency and force; and, as anticipated, she had received no rest during the night. Her face was now flushed, and skin moist, the pains grinding, and principally in the lower part of the abdomen, extending to the hips and back, the *os uteri* dilated to the size of half a dollar. Her bowels being constipated, I ordered an *enema*, and left her, promising to return in two or three hours.

"11 o'clock, A.M. Visited my patient again—had scarcely entered the door when met by the nurse, who,

greatly alarmed by her outcries, hurried me to her presence, exclaiming the "*child was near the world.*" On examination, however, I found no such favourable news; the *os uteri* very little more dilated than on my previous visit. But the pains were now very severe, recurring at intervals of two and three minutes, and of about twenty or thirty seconds' duration. As the pains had continued all night and morning, without much change in the condition of the *os uteri*, I anticipated a tedious time, and informed her that I would leave her a few hours more in the care of her nurse. I need not add that she consented to this proposition with great reluctance.

"1 o'clock, P.M. The patient is pretty much in the same condition as when I left her; pains as before, and the muscles of the abdomen hard and contracted over the uterine tumour, as in the last stage of labour; the *os uteri* dilated to the extent of an inch and a half, but very rigid.

"3 o'clock, P.M. The pains increasing in *violence*, and recurring every minute or two, accompanied by nausea and vomiting. Vertex pressing on the *os tinæ*; about half a gill of water distending the membranes.

"6 o'clock, P.M. Have been absent one hour; found the patient on her knees on the floor, two or three attendants holding her up, and supporting her back. This move was at the suggestion of the nurse, who insisted upon helping her out of bed, and placing her on the floor on her knees; the same position, she remarked, in which she had all her own children.

"Having ordered my patient to bed again, and placed on her left side, I made an examination *per*

vaginam, which showed the *os uteri* still rigid, sharp round the edge, and painful to the touch. The pulse being full and quick, I resolved to bleed her by the arm, which I did to the extent of fifteen ounces.

“8 o’clock, P.M. The patient much exhausted by the bleeding, respiration somewhat hurried, and the pains not the least modified in violence or frequency. On making an examination, I was surprised to find the *os uteri* still rigid and unyielding, although dilated to the extent of about two inches. The membranes entire, and the vertex to the left acetabulum. Patient screams, and bears on her pains with great force, but without forwarding the labour. Her outcries alarmed her neighbours, and arrested the attention of persons passing by, giving rise to speculation as to what was going on within.

“Taking now into consideration the exhausted condition of the patient, the labour having been protracted already over *thirty hours*, the *os uteri* still hard and rigid, the pains evidently *dilating pains*, though seeming to force down on the child, I was driven to *one* or the *other* of the following alternatives, *to wit*, Dr. Dewees’ method of bleeding, *ad deliquium animi*, etherization, or waiting for *time*. In the latter alternative, without regarding the risk of inflammation from farther protraction, but judging alone from the state of the uterus, the lack of expulsive power, delivery could not have been accomplished in less than six or eight hours. As to bloodletting, the patient had already lost fifteen ounces without any evident relaxation of the *os uteri*, or mitigation of suffering, and to push it any further,

with a view of benefiting the patient, was an expedient of doubtful utility.

“Having read with much interest a treatise on Etherization in Childbirth, by Professor Channing, I was forcibly struck with his explanation of the manner in which etherization acts in obviating the perils of labour; and also having lately observed the *relaxing effects* of it in a case of strangulated hernia, I resolved in this case to give it a trial, as a means of *relief*, and if possible, of expediting labour. According to the writer above-mentioned it gives the demanded relief, by ‘increasing dilatibility, diminishing or suspending sensibility, and taking away the disturbing action of the will;’ results most devoutly to be wished for in the peculiar crisis at which the patient had arrived.

“As the case was one of extreme suffering, and in every way favourable for the exhibition of the ‘*torture-saving agent*,’ I at once informed her of my intention, and explained to her the effects which it was intended to produce. She acceded to my proposition with alacrity, although having never heard of the agent in question before.

“Half past 8 o’clock, P. M.—Eight parts of ether to one of chloroform was now applied to the mouth of the patient by means of a sponge, of which she commenced inhaling freely. The pains continued as before; she complained immediately of the ether burning her throat, and pushed away the sponge; but as the pains returned, asked for it again, and in less than five minutes was under the influence of the anæsthetic. The sponge was removed from the mouth for a moment, at intervals, and the patient suffered to inspire atmospheric air until

the effects of inhalation had partially passed off, when it was resumed, but without producing, as I supposed, the full anæsthetic effect. The pulse soon fell from 90 to 70 in a minute; the pains continued regular as before, but more efficient; she seemed conscious of what was going on, and showed some indications of suffering, but bore the pains without any outcries; and, although she still complained of the vapour hurting her throat, grasped the sponge firmly, and inhaled without interruption until requested to lay it aside. In fifteen minutes after inhalation the *os uteri* was fully dilated, the pains recurring at intervals of one and two minutes, and of thirty and forty seconds' duration. Labour was now progressing rapidly, and in twenty minutes more the *vertex* passed into the hollow of the saerum.

“9 o'clock, fifteen minutes.—The head escaped from the *os externum*, and a fine boy, much over the medium size, was delivered. The *placenta* came away in a few minutes after the birth of the child, and the uterus contracted firmly without any hemorrhage.

“14th, 9 o'clock, A. M.—After the excitement of *suddenly* finding herself the mother of a healthy boy had passed away, she fell asleep, and did not wake before morning, when she felt refreshed and free of pain or fever. On inquiry as to her sensations during the time of etherization, she declared that she did not remember anything connected with her labour from the time she first inhaled the contents of the sponge; was perfectly unconscious of what had passed until she heard the cries of her infant. I may add that she got well without a single unpleasant symptom, and in less than a week was able to take charge of her babe.

“REMARKS.—It was not my intention at the time these notes were taken, to give them publicity, nor do I at this time take a stand in favour of etherization in midwifery. Although I believe in the doctrine that ‘*meddlesome midwifery is bad,*’ and that it is seldom necessary or proper to interfere in the natural progress of labour, yet I am also inclined to believe, from what I have witnessed, that the agent in question, when cautiously administered, is not only safe and efficient in relieving pain and mitigating suffering, but has the power of increasing dilatability of the *os uteri*, while, at the same time, it does not suspend or interfere with *uterine contractions*. I should therefore be induced in all cases of painful labour, when the uterus is rigid and the dilating pains very severe, to give it a trial. It possesses important advantages over opium in producing its effects almost instantaneously; and I have no doubt in this case it increased powerfully the dilatability of the *os uteri*, and thereby greatly hastened the progress of labour. It will be recollected that the patient had suffered the most violent pains for more than *thirty hours* before the application of the anæsthetic, and the condition of the *os uteri* at the time of its administration was still rigid, and but partially dilated. It will also be seen that the indications at the time favoured the opinion, that without its employment the suffering of the patient must have been prolonged *six or seven hours* more;—partial anæsthesia accomplished it in *forty-five minutes*!”

“CASE V. Dec. 8th, 5 o’clock, A. M.—Was called to see Mrs. S——, aged about 23 years, in labour with her first child. She was in her seventh month of pregnancy,

and had lifted a heavy trunk the day previous, which caused her a slight pain in the back; but did not consider it of any consequence, and went to bed at the usual hour. At midnight she was suddenly awakened by a gush of water which passed from her, and at the same time experienced a severe pain in the back and lower part of her abdomen; supposing her '*water had broke,*' she sent for me, and at the time of my arrival the pains recurred every five minutes with considerable severity. Upon examination the head of the child was low down in the pelvis, but the *os uteri* was not dilated over the size of a quarter of a dollar. I left her, promising to return at noon.

"12 o'clock, M.—The patient had grinding pains, recurring every three minutes, and the *os uteri* dilated to the extent of half a dollar, and rigid. I left her again, and desired her not to send for me until the pains were stronger, and of longer duration.

"11 o'clock at night, was sent for in great haste; pains as before; the *os uteri* dilated to the size of a dollar, and was felt at the lower and posterior part of the globe presenting. The pelvis being capacious, and the vertex to the left acetabulum, I expected the resistance of the *os tinæ* would soon be overcome, and a speedy delivery effected. In this I was mistaken; the uterus was stretched tightly over the vertex, and when the pains were on, the *os uteri* was hard and unyielding, and although considerable effort was made to stretch it with my finger, to overcome its resistance, it remained as before, and prevented the head of the child from descending. This state of things continued, with increased uterine action, until after midnight.

"1 o'clock, A. M.—Proposed etherization, and agreed to by the patient. Half past 1 o'clock the patient commenced to inhale, and in five or six minutes was under its influence; the pains continued at intervals, as before; pulse fell from one hundred and ten to ninety in ten minutes. On examination the *os uteri* was dilated sufficiently to push it back over the vertex, and it soon disappeared beneath the arch of the pubes. The pains were now not so frequent but more effective. In one hour and twelve minutes after the administration of the ether the child was safely delivered. The head remained about half an hour on the perineum, on account of longer intervals between the pains and the expulsive force having somewhat diminished. The patient was only suffered to inhale during the continuance of each pain, and in this way the anæsthetic state was kept up until labour was accomplished. From the sudden change in the uterus, I was led to the same conclusion as heretofore expressed, to wit, that etherization *increases dilatability of the os uteri*, or in other words, overcomes the resisting power by relaxing the soft parts. As a general rule, I would not think it necessary to keep up the *full* anæsthetic state any longer than is necessary to moderate uterine action, and mitigate the suffering of the patient. For this purpose partial anæsthesia can be kept up for many hours, and increased, if necessary, to its full effect at the close of labour, particularly at the time the vertex passes the *os externum*.

"The patient in question was of nervous temperament, and subject to attacks of hysteria; and although the child died in ten hours after birth, she is doing well; and it is probable, under these circumstances, without

etherization taking away the 'disturbing action of the will,' she would not have escaped an attack of her malady. The child, I omitted to state, had an *imperforate anus*, which hastened its death. *Autopsy* revealed that the rectum terminated in a *cul-de-sac* in the lower and anterior part of the vagina.

“JOHN S. ROHRER, M. D.,

“No. 557 Chestnut Street.

“Philadelphia, December 12th, 1850.”

TESTIMONIAL CORRESPONDENCE.

THE desire to lay before my readers the evidence of some of our most eminent practitioners in the medical department, in support of etherization, induced me to address the following circular to a number of my friends. Their answers, with a report of cases, will be found under the respective heads upon which they may treat. I would here beg leave to tender my thanks to all who have so kindly given me their attention.

Philadelphia, December 6, 1850.

MY DEAR SIR:—

Having in readiness for the press a small work upon the subject of ether and chloroform, I am desirous of adding to it the testimony of such of my medical friends in this vicinity, as may have used either one or both of these articles in their practice.

My own experience has been mostly confined to the use of these agents in surgery and dentistry, for the purpose merely of inducing anæsthesia; with only an occasional opportunity of witnessing their effects in cases of impaired health. I feel, therefore, particularly desirous of availing myself of such information as you may be pleased to communicate to me on the subject.

If you have used them in the midwifery department of your practice, and will favour me with the report of

a case, you will not only confer an obligation upon me, but it will do much toward confirming that confidence in the public mind, which has been, heretofore, so much abused, and which I have laboured to correct for the four years past, as an important condition to secure the happiest results in etherization.

Should you have discovered any injurious consequences referable to the use of these medicines, I would thank you to mention them, as facts quite as desirable to be known as the advantages pertaining to their use.

With much respect,

I am truly yours,

J. F. B. FLAGG.

The following is from Dr. Rohrer, of this city :—

“DEAR SIR :—

“In a communication with which you honoured me, on the subject of ether and chloroform, you desired me to give you the result of my experience, either in favour or against its employment, and favour you with the report of a few cases in the midwifery department of my practice. It affords me great pleasure to comply with your request; and, in doing so, if my humble tribute only tends to confirm what has already been written on the subject, with a view of directing a more general attention to this department of medical inquiry, an impor-

tant result in etherization will have been attained. It also gives me great pleasure to state, that having chiefly employed the agent in question in protracted and complicated cases of labour, I have witnessed no bad effects from its use.

“The following cases,* with some remarks, I have given you in detail, which are among the most striking which have occurred in my practice under the use of the anæsthetic.

“Very respectfully yours,

“JOHN S. ROHRER,

“No. 557 Chestnut Street.

“Philadelphia, December 12th, 1850.”

(From Dr. Griscom, of this city).†

“216 Arch Street, Philadelphia, 12 mo. 14, 1850.

“RESPECTED FRIEND:—

“Thy note of the 2d inst., in reference to the use of ether for inducing anæsthesia, is before me; and, in reply to thy queries, I can say that I have repeatedly used ether with this object in my obstetric practice, during the past two years, with very gratifying results. In a few cases, little or no benefit seemed to follow. The result of my experience is an increased confidence in its safety when judiciously administered, and a belief

* These cases are of much interest, and will be found both in the Pathological and Midwifery arrangement of this work.—Ed.

† See also Dysmenorrhœa, Case XIII., p. 72.

that much useless suffering, mental and physical, may be alleviated or removed by its use.

“Sincerely thy friend,

“JOHN D. GRISCOM.”

(From Dr. Mütter, Professor of Institutes and Practice of Surgery,
in Jefferson Medical College, Philadelphia.)

“DEAR SIR:—

“In reply to your note of the 6th inst., I have to say, that for several months past, and in a large number of cases demanding surgical operations, I have used ‘ether,’ as an anæsthetic agent, with great advantage, and without the development of a single bad symptom.

“‘*Chloroform*,’ in my hands at least, has not succeeded so well; and, from the hazards to which several of my patients have been subjected in consequence of its administration, I have abandoned its use.

“Yours, &c.,

“THOMAS D. MUTTER.

“Philadelphia, December 12th, 1850.”

Dr. Samuel Jackson writes thus:—

“DEAR SIR:—

“In reply to your favour of the 6th, I have only to

say that I have never used ether or chloroform by inhalation, in any case.

“Since I became reconciled to the use of ether, I have met with no case that required it.

“Very respectfully,

“Your friend and servant,

“S. JACKSON,

“30 N. Ninth Street.

“Philadelphia, December 12th, 1850.”

(From Dr. Pancoast, Professor of General, Descriptive, and Surgical Anatomy, in Jefferson Med. College, Phila.)

“DEAR SIR:—

“In reply to your inquiries of the 6th inst., in reference to my employment of ether and chloroform as anæsthetic agents, I may state that my experience with the former has been the most extensive. I have used it very commonly since its first introduction to notice as an agent of this description, without its having, to my knowledge, produced any permanent inconvenience in a single case. Its employment, on the other hand, in cases that could be fully brought under its influence, has seemed to me to have been of incalculable advantage to my patients, enabling them, under the anticipation of its use, not only to submit with more confidence to surgical operations, but to bear them, even of the severest kinds, when performed, with little and sometimes no consciousness of suffering; thus escaping, in a

great measure, a severe shock upon the nervous system, and thereby rendering their recovery more prompt and certain.

“My experience of the use of ether in midwifery is very limited; but I am very confident I have seen it mitigate suffering, without prejudice to the mother or child, and facilitate the relaxation of the *partes molles*, in protracted cases, that would otherwise have called for venesection.

“Chloroform I have also many times employed, as a preliminary to surgical operations; and though I am not confident that I have seen it produce injurious effects, I now generally employ ether in its stead, as this, in prudent hands, and properly administered, I believe is attended with little or no risk to life.

“Very respectfully yours,

“JOSEPH PANCOAST.

“Philadelphia, December 14th, 1850.”

Dr. J. M. Wallace replies as follows:—

“DEAR SIR:—

“You ask me to let you know what I have seen of the use of ether as an anæsthetic agent in medicine and surgery. I have repeatedly used it, and seen it used by others, in surgical operations of all degrees of severity, and never, in any instance, with any but the happiest effects.

“In medical cases I have used the ether for three

weeks at a time, every evening, to procure sleep in a very aggravated case of neuralgia, and the patient, who was unable to bear any ordinary anodyne, found the greatest advantage from it in relieving her sufferings, which were excessive until this agent was resorted to.

“In two severe cases of dysentery, I administered the ether for twelve hours at intervals, when the pain came on severely, and with the most agreeable results. In obstetrical practice, I have had recourse to it but twice, and I thought in each case, it relaxed the parts very favourably, as well as giving relief from the pains, which were very severe; and I shall continue to employ it in all cases to which it seems adapted.

“Yours, truly,

“J. M. WALLACE.

“Philadelphia, Dec. 26, 1850.”

(From Dr. E. Wallace.)

“Philadelphia, Dec. 27, 1850.

“MY DEAR SIR:—

“In reply to your note, I would inform you that I have used sulphuric ether as an anæsthetic agent, in but one case of midwifery. Its use was continued during the uterine contractions, for more than four hours. It did not *appear* to have any influence on the duration of the labour, but prevented all appreciation of pain by the patient, although it was not carried to perfect narcotism. Her after condition presented nothing

unusual, and the recovery was a good one. The amount of ether inhaled was 3xiv.

“Yours, respectfully,

“ELLERSLIE WALLACE.”

The following is from Dr. H. Bond, of this city:—

“DR. FLAGG:—

“Dear Sir—I received, in due time, your note requesting me to furnish you the results of my observation in the use of ether and chloroform, as anæsthetics. For sufficient reasons, part of which are known to you, and the others, it would here be out of place to state, I have hitherto been precluded from replying to it.

“My experience in the use of those articles, as anæsthetics, is limited to a few cases. I have never used either of them in parturition. One reason for this is, that for some time I have been compelled to relinquish almost entirely, this department of practice. Should I, however, meet with such cases of labour, as I have sometimes had heretofore, I should resort to the use of one of them; but the frequent every-day use of anæsthetics in midwifery, I deem to be unnecessary and unwarrantable. As I had also relinquished my limited amount of operative surgery, some time before the introduction of the anæsthetic practice, I have had no occasion to use these agents in this department of practice.

“My limited experience would lead me in most cases to prefer chloroform to ether. The former is much the most

powerful, and when it is considered how extensively it has been used, and by how many rash experimenters; when it is also considered how often we meet with idiosyncrasies, that will not tolerate a remedy, or an article of diet, which is neither offensive nor injurious to other persons, it is not strange that it has sometimes produced injurious and even fatal results. To those incautious, dashing, experimenters, who are prone to be unmerciful riders of new hobbies, it might perhaps be prudent to recommend the use of ether.

“I will briefly state one case, which seems to me to possess some interest in reference to your inquiries. I had under my care, for several years, a most distressing case of neuralgia, affecting more or less every part of the nervous system. It was beyond question, the most distressing case that ever came under my observation, and all the resources of the medical art, so far as it is known to many of the most eminent practitioners of Philadelphia, were exhausted upon it, without effecting more than a mitigation. Homœopathy was tried, and its nothings produced no effect. Mesmerism was tried, and she was very susceptible of its influence. At first it produced such a mitigation, that she had much better rest at night; but the effect became less marked every time it was tried, and very soon it was found entirely useless.

“In January, 1847 (when she had been under my care about 7 years, being then about 23 years old), her sufferings became excessively aggravated; she had slept none for several nights, and she could neither have her dress changed, nor even be turned in bed by a most careful nurse, without being thrown into a violent con-

vulsion. I invited my friend, Dr. Jackson (of Northumberland), to go with me and witness a trial of chloroform. I administered it by dropping about 30 or 35 drops upon a handkerchief, which soon produced its usual effect; but as this was about to pass off sooner than I desired, I added more, and she continued in the anæsthetic state nearly an hour. We carefully watched its effects. Her countenance lost its distressful expression. It was neither suffused nor pale, and it appeared as calm and composed as if in the sweetest sleep. There was no acceleration or other disturbance of the pulse or respiration. When the effect of the chloroform passed off, she was much refreshed, and passed the following night more comfortably than she had done for a long time before; but the attempts to turn her in bed and to arrange her dress, brought on convulsions as before, and as the distressing symptoms were increasing, chloroform was again administered with a like favourable result. She continued in this condition more than a year, and chloroform was administered every day, once, twice, or three times. It was only when under its influence that she could be moved without producing horrid agony and convulsions. During this period, no dangerous or alarming symptoms occurred, which could be attributed to the remedy. I continued to visit her at more or less remote intervals, but the chloroform was always, after the first day or two, administered by her mother. For an hour or two after the anæsthesy had passed off, she had some dulness and uncomfortable feeling in the head, and this was the only inconvenience resulting from the practice.

“After the lapse of more than a year, the symptoms

became so much aggravated, that she was in excruciating agony or convulsions the whole time, when not under the influence of chloroform; and her friends kept her under its influence as much as half the time for ten days. This inordinate, enormous use of it produced some disturbance of the mind, and a good deal of distress in the head. There were no other unpleasant symptoms attributable to it. As the violent symptoms were now subsiding, the use of the remedy was lessened, and very soon almost entirely discontinued.

“I have stated so much of this case (for a full report of it would fill a volume), in order to show to what extent this remedy may be used, in a system of the extremest nervous susceptibility, without inducing any dangerous or alarming symptoms, or, at least, not until the patient was kept fully under its influence half the time for several days.

“For several months past I have had under my care a patient long affected with, and now in a very advanced stage of chronic bronchitis, and whose lungs have both become implicated. His respiration was a good deal oppressed, and he was much affected with nervous irritability and neuralgia about the fauces and air-passages. His stomach has been in such a condition for many months past, that it would not tolerate those remedies which are usually found most serviceable in such cases. In order to mitigate his symptoms, I recommended the inhalation of ether, but not to the extent to produce anæsthesia. It seemed for a time to afford considerable alleviation, but after a trial of a few weeks it was discontinued, as affording no essential relief.

“About the same time that he began the inhalation

of ether, I recommended the use of ehloroform externally, as an anodyne and counter-irritant to the throat and chest. I moistened a piece of muslin more or less with it, according to the effect desired; and, upon its application to a part, immediately covered it with a piece of oiled silk, or some other article that would prevent evaporation. These applications produced very decided relief—so decided that he has continued the use of them until now, more than four months, using them repeatedly every day. His skin does not, of late, seem to be so susceptible of the action of ehloroform as at first, and he uses it much more freely, using at present not less than an ounce daily, and in such a manner that he inhales much of the vapour, so much as manifestly to affect him, but not so as to produce complete anæsthesia. Sometimes, indeed, it approaches very nearly to it. The use of it seems to have become almost indispensable to him; and although now reduced to extreme debility, almost to the lowest stage of vitality, neither he nor myself have discovered any ill effects produced by it. Some time since I recommended another trial of ether, but it was neither so pleasant nor so beneficial as ehloroform, and it was forthwith discontinued.

“With my best wishes,

“Respectfully yours,

“HENRY BOND.

“January 8, 1851.”

MISCELLANEOUS CASES.

It has been my object thus far to report only one ether case, as illustrative of each of the positions I have assumed in the arrangement of this work. To have multiplied them, would only have served to establish the same facts in different degrees. Having selected such as appeared to me to bear most strongly upon the several subjects, I trust my readers may find amusement at least, in the perusal of what follows.

CASE I.—A gentleman desiring to have a tooth extracted commenced breathing the ether, but immediately stopped to say:—"I have taken this, years since, and if I go on breathing it, it will make me crazy, and take twenty men to hold me." (He supposed from its niek-name, "Letheon," that it was something new.) I thanked him for mentioning this fact, and explained to him the difference in its effect, growing out of the *motive* for which it was taken. After exacting a promise from him that he would be governed by me when etherized, as far as he could understand me, I proceeded to put him under its influence. He had inhaled but a minute or two, when he began to swing his arms about, showing some little belligerent disposition. I said to him: "Keep your arms still." He dropped them at once into his lap, but immediately commenced stamping his feet. I commanded him to keep these still also.

He obeyed as readily, but began to make a loud noise, somewhat between a quarrelsome and a merry drunken mood. At this, I exclaimed with a little severity: "Sit perfectly still and keep quiet." He seemed to be instantly transfixed. He held his breath for half a minute. I removed the tooth without the least resistance on his part, and with no change from a comically fixed countenance and position. The whole was ludicrous in the extreme, and while his friend and myself were enjoying the scene, he suddenly cried out: "By —— I *must* halloo." "Well," I said, "halloo now as much as you please." The ether was now off. He had no disposition to make further disturbance, and did not know when he lost his tooth. He said he thought there was a great excitement about something or other; he could not tell what. That everybody around him was very happy, cheering and making a great noise. He desired to join in the fun, but could not; he was perfectly spellbound, and believed he should have died had he not given vent to his feelings as stated above.

CASE II.—Two young ladies from West Chester made me a visit, each requiring a tooth to be extracted, and upon etherizing the first one and removing her tooth, she remained perfectly calm for about one minute after it was out. She then began to cry quite loud, and continued to do so for a minute or two, when the ether passed off, and she said she had a perfect consciousness of all that had occurred *except she thought her friend had undergone the operation instead of herself*, and her tears were those of sympathy.

CASE III.—Two sisters, aged eight and ten years, came to my office together, for the purpose of taking the

ether and losing a tooth apiece. The eldest commenced, in order to set the example to the younger ; and while giving her the ether, the other came forward and took her seat in a chair directly in front, to witness the operation. The sympathies of this little girl were much awakened, and she shed tears freely on the occasion. When the ether was off sufficiently for the patient to begin to comprehend matters, seeing her sister in tears, she said: "Did it hurt?" The other answered, "How should I know?" *Elder sister.*—"Didn't the Doctor pull your tooth?" Here she became fully conscious, and much merriment followed the singular mistake.

CASE IV.—Whilst engaged in giving the ether to a young gentleman of this city, he suddenly stopped breathing it, and very handsomely apologizing for the interruption, observed to me, that the last time he took the ether, he fought with the dentist. He hoped I would excuse him if his conduct should be similar in my office. I merely said to him that I should consider him as on his good behaviour, and there was no trouble in his case whatever.

CASE V.—In an early period of my ether practice, a gentleman from New York desired to try its effect upon himself and have his tooth extracted. It was my custom at that time to give the ether by means of an inhaler, a glass globe with a flexible tube and mouth-piece attached. *The whole was constructed with the necessary number of valves to produce the desired effect.*

This gentleman held the cup or mouth-piece to his lips, and began breathing very comfortably. There was no irritation of the throat, and of course, no dispo-

sition to cough. His pulse quickened somewhat, and after breathing about a minute, the perspiration stood upon his forehead. I asked him how he liked it? He said, "Very well." In about a minute afterwards I asked him how he felt? He replied, "Very well." Another minute passed. He looked for a moment a little wild,—rolled his eyes—countenancee flushed. I again said, "Do you hear any noise in your ears?" He seemed to listen for a moment, but made no answer. At this point, he closed his eyes and rolled his head over upon one side. I took away the mouth-piece; his mouth remained open. I remarked, "That will do!" He answered in the same way as before, "Very well."

This monotonous way of speaking in *etherized* patients is generally one very good guide (short of perfect narcotism) *when* to extract a tooth. It often occurs that patients will say (after answering the first question affirmatively), "yes,"—"yes,"—"yes," to every succeeding question that may be put to them, without the least regard to the nature of the question itself.

I extracted the second lower molar tooth for this gentleman, and used the old-fashioned "wrench," or "German key," to perform the operation. This I did, in order to illustrate to him *how cruel a tool might be used with impunity, when under the influence of ether!*

My patient made pretty much all the usual demonstrations of pain that are manifested when the operation is really a painful one, "*and no mistake,*" such as distorted features, raising his foot, a groan, approaching an outcry. Immediately after the tooth was out, he carried his hand to his jaw, and swayed his body as if in much agony. I asked him if it hurt him much? He

said, "It did, very much!" I, at the moment, was under the impression that his answer was *dictated* from the manner of my putting the question, and I waited a few minutes to give time for the ether to pass off. I then said, "What were your feelings?" He replied, "I did not perceive any difference in my feelings from what they ordinarily are." "Did you have no dizziness, no noise in the head, no tingling sensation in the hands or feet?" "*No, not any!*" "Then why did you allow me to extract your tooth?" "Because," said he, "you said, 'that would do,' and I supposed you knew all about it." He said it was of no consequence, as the tooth was out; but he looked as though an imposition had been practiced upon him.

In the course of a little farther conversation with this gentleman (not perceiving the smell of the ether in his breath), I ventured the opinion that he had not inhaled any. I then examined the mouth-piece of my inhaler, and discovered that the inner valve had stuck in such a manner as to preclude the possibility of the passage of its vapour! He had drawn through his *nose* the atmospheric air, and expelled the same by mouth through the tube.

After relieving my apparatus of this obstruction, I requested him to inhale it, to see if he had obtained any of it upon his previous trial. He took a strong inspiration, and jumping out of the chair, exclaimed, as soon as he was able to speak, "No, sir, I am thankful I got none of that stuff before!"

I could not prevail upon this patient to place himself under the influence of the ether; he expressed himself as perfectly satisfied to take my word for it.

CASE VI.—It sometimes occurs in ether practice that much difficulty is experienced in getting the patient to breathe it beyond the *exciting* influence. He will, occasionally, resist it beyond this point to such an extent as to render it quite as well to attempt the forcible removal of a tooth, as to compel him to inhale the ether so as to induce absolute slumber. This fact frequently makes the operation one of a nature more unpleasant to *witness* than to experience.

The following I relate as the most remarkable and unpleasant case that has occurred in my practice :

A poor woman came into the city from a neighbouring town to obtain something from an apothecary to put into her aching teeth. She had several bad teeth ; three of them were then giving her pain, and had been doing so for some months past.

The druggist to whom she applied, looked at her teeth, and told her she must have them extracted. She said “I will die first !” He then said to her, “If you dread the operation so much, you had better go to Dr. Flagg’s ; he will give you something to put you to sleep, and will take them out without your knowing it.” She was much delighted at hearing that such a thing could be done, and immediately called upon me in company with quite an elderly woman, who was her near neighbour, and who represented to me, that my patient had already suffered from this attack to such an extent, as not only to obtain no rest herself for several nights past, but her friends had also been broken of theirs very much on her account, and, if it was possible, she hoped I could relieve her. The old lady really spoke feelingly upon the subject.

This patient entertained no fear as to the ether; her whole mind was filled with the thought of her teeth. She was much prostrated with her long sufferings, and, in short, she was *the* personification of the horror of tooth-pulling.

I had proceeded but a minute or two in giving her the ether, when she began to resist and to cry out "*Stop, stop, stop.*" She became violently rude, pulling off my spectacles, and displacing my watch by catching hold of the guard. She kept her teeth very firmly closed. I requested the old lady to hold her hands; at the same time assuring her that the young woman was not conscious of her resistance. This, the attendant did not fully credit, and her assistance consequently amounted to nothing. Soon the ether passed off, when the patient exclaimed "Are they out?" Upon being told that her resistance frustrated my attempt at extracting, she desired me to give her the ether again. I did so, and had the full co-operation of the old woman this time, but with no better success than at first. On recovering from its effects, her conduct was the same as before, desiring me to give it again, &c. I said it would be of no use, unless she allowed me to call in assistance enough to hold her; and requested her to put it off for a few days, when I hoped it might be taken with happier effects. She would not hear to this last proposition, but begged me to give her more, desiring me to call to my aid all the assistance I might require.

At this third etherization, my force consisted of two strong Irish girls, in addition to my former help. Finding them insufficient to hold her, I allowed the ether to

pass entirely off, before I began to explain the nature of the difficulties in the case. Much ether had been consumed in these fruitless attempts. There was considerable prostration on the part of my patient from previous suffering, and I felt some apprehension that reaction, after so much excitement, might be injurious to her. After a period of fifteen or twenty minutes, and discovering no unpleasant results from the ether, I was induced, by the most earnest importunities on her part, *to tie her firmly into the chair*, and make one more effort in this singular case.

After using up an entire clothes-line in binding her, *hand and foot*, to the chair, I again required the aid of my three female assistants. When etherized, as at the previous trials, her struggles were tremendous. She uttered no cry, but worked herself down into the chair, in defiance of rope, women, and what aid I could render to keep her in position. By the time I succeeded in extracting one tooth, I discovered the rope, that was previously around her waist, *to be drawing tightly across her throat*. It became necessary to relieve her from this situation immediately, and by the time I had got her disengaged, she was sufficiently recovered to be sensible that a tooth had been extracted. She soon began to walk up and down the room, exclaiming: "Is it possible! I have had a tooth out!" "How was it done? and I didn't know it!" "God bless you, sir, God bless you!" After sitting down a few minutes she very deliberately said: "Give me some more, and take the others out." "No, Madam," said I, "however amusing all this may be to you, *we are tired out*." And nothing but my plea of

inability, *from utter fatigue*, quieted her earnest solicitations for more ether.

I had removed the most objectionable tooth. The others could have been easily extracted, and would not have been painful, even without ether. This I explained to her, and offered then to take them out if she would allow me; but I declined giving her more ether. As a substitute, I offered to extract them gratuitously, and more, if she would have them out, I would refund to her the fee I had taken for extracting the first. She was a poor woman. She hesitated a moment, and then fell back upon her original text, "I'll die first."

CASE VII.—A gentleman and his lady visited me, lately from Tiverton, Rhode Island. They each desired to take the ether and have some offensive teeth extracted. They were much gratified with it, but there was not anything remarkable in that.

The gentleman was sorely afflicted with a boil upon his hip. It was his intention to remain in the city for a week, but he abandoned the idea of being able to visit the objects of attraction in our beautiful city. His pain was intense in almost any position he could assume. Walking gave him great uneasiness, and sitting was quite impracticable, from the extreme tension of the parts embraced in the swelling.

On examination, I found it quite remote from the suppurating point. It was much inflamed and indurated. I recommended him to take the ether and to allow me to open it freely. This he consented to, and suffered no inconvenience in the operation, except when in the last stage of manipulation he said it hurt a little. The discharge of blood was pretty copious, but very little

matter was discoverable. I bound up the wound with a small, simple bread poultice, into which I put 10 or 12 drops of chloroform.

The day following this operation, my patient said he was comfortable, and walked about the city with comparative ease. This boil was cured in much less time than it would have taken to ripen, and at least one week's suffering was saved, to say nothing of the inconveniences to which he would have been subjected.

CASES VIII. and IX.—Ether baby *vs.* Ether baby. As many have been occupied in spreading false alarms in relation to ether, it is not strange that an occasional *trick* should reach our ears, when these rumours have failed to intimidate in the first instance.

The physiological effects of ether have been well investigated, both at home and abroad, particularly as relate to lying-in women. The received unanimous opinion of all who have given it thus far, is decidedly favourable to its use. *No bad effects have been reported, either to mother or child!*

It is said, as a general thing, that *ether* children enjoy as good health, are as bright, and in all respects, are equal to those who are born without this agent, if not superior to them. Now with the amount of experience already had upon this subject, what shall be said of the man, who from motives of prejudice, would attribute to it the death of a still-born infant, a malformation, or, a thing not unusual, an irritable temperament? Whether said in earnest or in jest, the effect is intended to be the same. It is to alarm confiding, and in many instances, too credulous women. No woman would take the ether, if she thought it attended with risk to her

child. No woman has taken it that does not daily thank God for the gift.

I.—A lady lately confined with her fourth child, took the ether. She was much gratified with it, and in all respects did well. Her infant is a good deal troubled with “wind colic.” The child is more “worrysome” than either of her previous children, *and her physician attributes it to the ether.*

II.—A lady lately confined with her fourth child, took the ether. She was much gratified with it, and in all respects did well. Her infant is a remarkably quiet child; more so than either of her previous children. In all other respects, these children are, of course, the best children that ever were born.

CASE X.—A RASH VOW.—In the spring of 1850, a lady drove in her carriage to my office, accompanied by a favourite domestic, who had been suffering for several days with toothache, arising from a small and very loose, but inflamed root. The poor woman had exacted a promise from her mistress the day previous, to accompany her, to the exclusion of all other calls which the lady was desirous of making; equally promising, on her part, to take the ether and rid herself of her troublesome tooth.

On entering my room, this patient manifested the greatest timidity. She would not allow me to approach within five or six feet of her person, but kept at least that distance every time she desired to show to me her tooth. It required a long time to induce her to take a seat in the chair, and then as long again to prevail upon her to open her mouth. This I could not have done with anything that looked like an instrument in my

hand. She acted very much like a child, expecting to be suddenly cheated out of a tooth. I am not clear that she did not desire her tooth to be removed upon this principle. Her mistress, I think, must have taken a similar view of the case, for in an instant she threw her arms around her, and exclaimed, with a good deal of excitement, "Take it out now, Doctor, I can hold her; take it out! I will be responsible!" "No, Madam," I said, "I shall do no such thing; I would not extract a tooth in this way for a *child*, and I am sure I shall not for a full-grown woman." Another half hour was spent in endeavouring to persuade the woman either to take the ether, or to have her tooth extracted without it, and we seemed no nearer a consummation of the object of her call. Suddenly the lady uttered the following remarkable words; "I solemnly vow, I will not leave this room till that tooth is out!" This *was* a rash vow; but I believe the lady to have been altogether too much excited at the moment to be held strictly responsible for her words. Her mind was wholly bent upon the comfort of her servant. She saw the lack of moral courage and wished to present the highest motive to stimulate her to the deed, namely, this solemn committal of herself.

This lady has long sustained a high reputation for her literary acquirements and firmness of character, as well as her goodness of heart and great integrity, in all her walks in life. It was a great error, however, to have made two such mistakes as were embraced in her vow. In the first place, the object to be attained was altogether of too trifling a character to require the solemnity of an oath, and secondly, the object for

whom the pledge was made, could not appreciate its importance in the slightest manner possible. When this was made manifest to the lady, her alarm became very great. The readiest method which presented itself to her mind to absolve herself, was to send out and obtain sufficient force to compel her to the operation. This I repudiated, and finally succeeded in arresting their attention by the recital of two or three other cases of some interest, which presented themselves to my mind at the moment.

At the end of *three hours and a half*, she consented to take a little ether. It was not so bad to take as she had thought it. She took a little more. She was surprised to find it was rather pleasant than otherwise. A little more, and for an instant she was gone. In that instant I pushed her tooth out of its socket, and lodged it upon her tongue.

CASE XI.—It has often been observed in relation to ether inhalation, that it would only be justifiable to resort to it, in view of undergoing some very severe and long-continued surgical operation. *Extracting teeth* has been looked upon as altogether of too trifling a matter, to warrant us in the risk of so powerful an agent, &c.

Strong, courageous men, and pain-enduring women, shrink more from the extracting of a tooth, than from the most formidable operations practised in surgery; and if additional risk is at all dependent on the length of time necessary to keep up the effects of the ether, most certainly its advantages, in this respect, are in favour of dental operations. Besides, the necessity for the use of ether is, in a great measure, dependent upon

the amount of *dread* occupying the patient's mind in reference to his case.

A lady, of this city, on finding it necessary to have a few defective teeth extracted, said to her husband, it would kill her to have them out, and she might as well be killed by the ether as by the operation. This lady had twice submitted to the cruel operation of having her toenail split, and dragged out by the roots; and this without giving the ether a thought. Her husband was opposed to ether "*tooth and nail*," but he reluctantly gave his consent in this instance, and accompanied his wife to witness its effects.

The ether was inhaled, and the lady became at once most earnest in her commendation of it. The ground was broken to eradicate her husband's prejudices, and a few subsequent cases served to confirm him as an advocate for its use.

CASE XII.—A gentleman commenced taking the ether in the evening, for the purpose of having his tooth extracted. It was necessary that a light should be held to enable me to perform the operation; and, for this purpose, I called to my aid one of my domestics. The gentleman soon began to manifest marked symptoms of excitement. He sang and beat time with his feet, and was very happy; but, finding that he was becoming too noisy, and that his movements were likely to interfere with my operating with safety, I requested him to be quiet. He obeyed me very well, but laughed immoderately, until I had succeeded in removing the tooth. My servant became imbued with the spirit of fun, and thoughtlessly remarked, "*Sich cuttings up I never saw.*" In an instant, my patient jumped out of

the chair, and cried out, "Cut who up? *No you don't, Doctor !*" and he accompanied the saying with the usual sign, as though he knew a thing or two.

This gentleman then begged of me to say nothing about his conduct. He said, "I ought to have known better—it was only a dream;" and he seemed quite mortified. After a few minutes' conversation, I said to him I thought it was too good to be lost, and asked why he objected to my mentioning the facts? He did not remember anything that had occurred from the time he commenced singing, and had no objections to my making such use of the case as I might see proper.

But few instances have been witnessed by myself wherein the patient has remained under the influence of the ether (mentally), to exceed four or five minutes after ceasing to exhibit it, and it certainly is a peculiar feature, whenever this does happen, that their conversation is as rational as it could possibly be with full possession of all their faculties, so much so, indeed, as nearly always to mislead me, till they may suddenly exclaim, "Now it's off!" or a similar thing occurs to that cited in the above case.

CASE XIII.—I recently extracted two teeth for a young lady who had previously taken the ether for a similar purpose, and she said to me, that notwithstanding she suffered no pain, she always *dreamed* that she was getting a tooth extracted. I requested her to visit London, and see how they were progressing with the fair for the "World's Convention." She followed my advice, and said they had got their machinery in motion. She had a delightful time; but she insisted upon it that I followed her, and pulled her teeth out.

CASE XIV.—On the same day with the last case, a young man visited me with the same object. I related to him the success of my sending the young lady across the ocean, and desired him to take the same trip. He was readily brought under the influence of the ether, and was somewhat excited. He manifested great delight, both by the motions of his body and by the expression of his countenance. His breathing was rather hurried, and approached very nearly to a laugh. At each attempt to force my forceps high up into the jaw to remove the decayed roots, he became very quiet, stopped breathing, and looked serious; then he would immediately resume his former happy mood. This was repeated some five or six times before the operation was concluded. When it was over, he said he had enjoyed the greatest sleigh-ride, “And,” he added, “how I did go it! It was rare sport; but I didn’t like the *stopping-places*.”

CASE XV. *Leading Questions*.—A young gentleman from Virginia, requiring my professional services, called with a friend, and as I extracted his tooth, he made the usual demonstrations of pain. I immediately asked him if it hurt. He said “It did.” Said I, “Very badly?” “Yes,” he replied, “very badly.” I of course expressed my regret that I had operated before he was sufficiently etherized. He said it was of no consequence, and immediately left my office. In less than ten minutes he returned, and observed that he walked about the distance of a square before the ether passed off, and then he was first made aware that his tooth had been extracted. He returned to apologize to me for giving me the impression that I had hurt him.

During the early part of November last I was happy in responding to a request on the part of a few citizens of Easton, Pennsylvania, that I should visit that place for the purpose of addressing them upon the subject of ether, and to demonstrate to them its usefulness, under every variety of circumstances, as an anæsthetic in painful operations.

The views and feelings of most of those who presented themselves to me for professional services were influenced more or less by those surrounding circumstances which always, to some extent, pertain to new discoveries. This condition, intermediate between *hope* of success and fear of serious consequences, based upon reports prejudicial to ether inhalation, is one of the most difficult to control. It is, however, much dependent on the mind of the patient himself whether perfect control or not shall be had in his particular case. The confidence manifested in me by my Easton friends on this occasion was not only a gratifying compliment to myself, but must, of itself, have had its wholesome influence on the mind of the etherized.

I take the liberty of reporting a few of the cases, in the desire that they may be made subservient in the calming of that excitement which so unnecessarily prevails upon this subject.

A lady, desirous of having several objectionable teeth extracted, inhaled the ether for this purpose on two successive days, each day having quite a number taken out. Although this lady had previously visited the city for a similar purpose, and had there made use of the ether under more unfavourable circumstances (suffering with impaired health at the time), and knowing from this

experience that no pain need be felt, still there was a doubt in her mind as to the propriety of her resorting to this agent, based, I think, entirely upon religious scruples. She was persuaded into the use of the ether without having had a fair opportunity of disabusing her mind of this conception; and although her confidence in the ether and in my ability to administer it was all but unlimited, still it became impossible to carry it beyond its exciting influence. In the course of a minute after beginning to breathe the ether she would become quite agitated, and much difficulty was experienced in endeavouring to obtain that uniform breathing so requisite to secure quiet and pleasant sensations. She manifested under these circumstances much more distress than she really felt; and it was difficult for her to assign any good reason why she could not continue to inhale in strict accordance with my directions. Enough, however, was accomplished, with all these adverse conditions, to secure the removal of the teeth with but trifling pain; and so much to her satisfaction as to cause her to say she would not hesitate to take it again if it should ever be necessary for her to lose another tooth.

A somewhat similar case to the above occurred in my parlour at the "American House." A lady visited me who had been much alarmed in relation to the ether by her physician, and by the many prejudices which prevailed in her neighbourhood against its use. She resided about twelve or fourteen miles from Easton, and made two visits to that town during my stay there, before she could allow herself to take the ether. Upon being etherized she resisted me somewhat in the re-

moval of a couple of teeth, and made a slight outcry, but in a minute afterwards she said she had no knowledge of her teeth having been drawn, and that she had suffered no pain: she felt uneasy about her children at home; thought they were being molested by snakes. This lady also expressed much satisfaction with the ether.

A lady for whom I extracted eight teeth inhaled the ether. This lady had no fears to interrupt the happiest arrangement in placing her fully under its influence. Her mind was calm, in view of a painless operation, to be secured by means of an agent, well tried and highly approved by many of the best men in the world. She possessed also the great advantage of the confident assurance of her father, who is a physician of much eminence in our state, and who was present on this occasion.

The influence of the ether upon the mind of this lady was natural, and such as can often be secured under the circumstances. She thought she had been in heaven, and was there accompanied by her father. The ether passed off in a minute or two, leaving no other impression than that of having slept soundly, and the enjoyment of a pleasant dream.

A young lady, for whom I extracted four teeth, inhaled the ether with great confidence, and followed well all my directions in relation to it. She became totally unconscious of the operation, which was one of much severity, and did not even occupy the time while etherized with a single thought upon any subject. It was an absolute blank of about three minutes' duration; and when she recovered her consciousness, it was very much like waking from a deep sleep.

This patient had been troubled for some time with considerable stricture upon the lungs, accompanied with a dry, short, and unsatisfactory cough. She informed me a few days after this operation, that her breathing had become easier, her cough was loose, and she was readily relieved of superabundant secretions in the lungs. In short, her health was improved, and she felt justly disposed to attribute it to the ether. This ease was witnessed by the Rev. Dr. Grey, to whom I desire to express my acknowledgments, not merely for the many acts of kindness and hospitality shown to me on this occasion, but for the interest manifested by him in the promulgation of that knowledge upon the subject of ether inhalation, which, I trust, will soon lead to the abrogation of a vast amount of physical suffering.

A gentleman visited my room, in company with Dr. Swift, and wished me to extract the root of an eye-tooth, which had been broken even with the gum on the previous evening, under the following unpleasant circumstances: this gentleman had previously arranged with his dentist in Easton, for the purpose of supplying the loss of a few teeth by means of artificial work upon a gold plate. On the evening before his call upon me, he had visited his dentist, and complaining of much pain in one of his teeth, asked advice as to the course he should pursue with it. The dentist told him it must be extracted. The gentleman thanked him for letting him know the worst at once, and thus opportunely, as I was then in town, and he desired to avail himself of the ether. Whereupon the dentist requested him to let him look at it again. The young man stated that he

did not wish him to extract it, as he was just recovering from a severe fit of sickness, and did not feel able to undergo the pain. *The tooth was suddenly seized, and in the attempt to remove it, it was broken, as before stated.*

The effect of this treatment was singularly illustrated the next day, while under the influence of the ether. When satisfied that he had inhaled sufficiently to justify my extracting his tooth, I did so with but little resistance on his part; but as soon as the tooth was out, he said: "You were too quick, I was not ready for you!" and this he repeated two or three times. He then said, "I was perfectly conscious when you told the girl to shut the door!" The door had not been opened, and our party of three had in nowise been interrupted. Here the ether left him, and he expressed much astonishment at finding himself in my apartment. He thought himself back in the hands of his former dentist, and that he was in reality undergoing a repetition of abusive treatment. All this, it is true, seemed to him as a dream, and the pain he felt was such as we recognise in dreams under ordinary circumstances.

A lady, desirous of having ten teeth extracted, was much pleased with the effect of the ether as far as the operation was concerned; but she was impressed, while under its influence, with the singular notion that her husband did not recognise her little daughter (both of whom were in the room at the time), and, for a minute, she introduced them to each other with considerable formality.

A few other cases which presented themselves to me while at Easton, developed no farther peculiarity in the

action of the ether, than is ordinarily observed in its use. All who inhaled it, and, I think, all who witnessed its inhalation, are fully convinced of its usefulness, and will constantly be found on the side of its advocates.

CASE.—Jan'y 9th, 1851. A peculiar effect of etherization having occurred this day in my practice, and this book being too far advanced in the hands of my publishers to allow of its introduction under the proper head, I here insert it, to induce attention to similar cases that may arise in the use of this article.

Miss —, about 18 years of age, visited me, by the advice of my friend, Dr. Samuel M'Clellan, to have two much-decayed molar teeth extracted. She had been suffering for some time with intense neuralgic pains about the head and neck, and these teeth were sufficiently impaired to suspect them of being implicated, if not solely the cause of her trouble.

This young lady was well brought under the ether influence, and lost her teeth without knowing it. Upon her return to consciousness, and after its usual effects had passed off, she complained that a small portion of the lower lip retained the peculiar numbing sensation that had so recently pertained to the whole system. It also *felt* much enlarged. Nothing had touched her lip, either in the process of etherizing or extracting, beyond what usually occurs; I was therefore led to examine more closely into its condition. There was discoverable, just below the edge of the lip, and about half-way between the centre and the angle of the mouth, a cicatrix of about three-quarters of an inch in extent, the result of a wound in early childhood. As a consequence of this

wound, there was the slightest possible enlargement of the lip directly over it. To this small region was the persistent effect of the ether limited. Whether from deranged anastomosis, or from violence to a nerve at the time this wound was inflicted, that this peculiarity should pertain, I am not prepared to say.

SULPHURIC ETHER.

UNFAVOURABLE IMPRESSIONS IN REGARD TO ITS USE.

ALTHOUGH there is no well-authenticated statement in which ether has been proved to have done fatal, or even serious mischief, it certainly is somewhat surprising that such should be the case, for reasons sufficiently given on several pages of this book already.

I have taken much pains to learn *particulars* in all unfavourable ether cases that have reached me ; and, in nearly all, it has been mismanagement or gross ignorance that has caused the trouble.

Soon after the discovery of the application of ether to surgical purposes, a number of medical gentlemen associated themselves together, in Boston, the better to investigate or test all the merits and demerits which presented themselves in connection with the whole subject at that time. Among other things, they sought out and reported three or four adverse cases ; some of which were of a distressing character it is true, though none proved fatal. It was enough that these patients had taken the ether, and that these bad symptoms presented themselves. *How* the ether had been administered was not adverted to ; and yet we have the evidence of Dr. Keep, one of the most respectable citizens

of Boston, that it was the aim of some who gave the ether at that time, to shut off the atmospheric air as much as possible. Although this was an error in judgment, it is not to be wondered at in the very commencement of this practice, and more particularly when we take into consideration the fact, that it is really desirable to induce sleep in the shortest possible time. A few similar cases have been reported to me in this vicinity, and I have traced them to a similar cause.

With all my desire to impress my readers favourably in regard to ether inhalation, I have, in no instance, withheld from them its unpleasant effects ; neither will the candid accuse me of having selected the most favourable cases, unless, indeed, it has been to establish some collateral point, in which, at the time, the patient was not interested.

A report of one or two cases in which the ether failed, in my hands, to accomplish its object, may not prove useless, if not particularly interesting.

CASE I.—The first instance in which I witnessed a failure in the ether to anæsthetize, occurred after an experience of some five or six months in its use. It was the first case in which I had the pleasure of assisting Professor Mütter in his private practice in this department ; and, although the failure was total, I am happy to state that the desire on the part of this gentleman to secure to his patients immunity from pain, suffered no prejudice in this, his first experience.

Miss —, aged 12 years, required the toe-nail to be split and extirpated. I administered the ether for the space of five or six minutes. Her pulse ran up to about 140 beats in a minute, and then became weak,

so as scarcely to be felt. Her countenance became much flushed, perspiration profuse, and the breathing somewhat difficult. There was no dizziness, no noise in the ears, no numbness in the limbs; in short, there was no one favourable etherized symptom in the case, but several physiologically adverse. I was unwilling to continue its use, and requested that the operation should proceed. The pain was quite as severe in this case, as though no ether had been used.

CASE II.—*Schirrous Breast*. It was also in the early part of ether practice, that my services were required by Professor Horner, in a case of amputation of the breast. The patient, a lady about 50 years of age, was, in every respect, a good subject for etherization. I had assumed the responsibility in regard to the ether, under the impression that but one breast was to be removed; but, upon assembling at the hour appointed for the operation, it was concluded to amputate both.

The ether had never, to my knowledge, been so long administered at any one time as it would require for this compound operation, and prudential motives suggested to me the idea of trusting to its partial effects, rather than to induce entire narcotism. After the first one or two incisions, the patient became so much aroused as to suffer, perhaps, quite as much as she would have done in her natural condition.

CASE III.—As a result of great timidity on the part of the patient, I may instance the following as a failure in etherization. A lady called upon me, who had been much alarmed on the subject of ether, from her dentist's version of the matter, and commenced inhaling it for the purpose of having a tooth extracted. She was

accompanied by several friends, who were desirous of witnessing its effects, and who seemed anxious that she should proceed to inhale it, as they felt every confidence in its safety. After about six or eight very ineffectual inspirations, the lady exclaimed, "Oh, horrible!" I observed to her that she had better abandon it, than to proceed with such ideas. She very prudently adopted my suggestion, and there the matter ended.

In concluding this chapter, I would observe, that in conversation with some of my medical friends who are now using the ether, they have expressed the opinion, that in a few instances they entertained doubts as to any positive relief the ether might have afforded their patients, during the time of their confinement. At the same time, they have freely admitted that they might not have carried its effects far enough. This, undoubtedly, was the case; and I trust that, hereafter, when it shall appear that certain idiosyncrasies will not admit of successful *partial* etherization, they will not fail to induce *perfect narcotism*.

CONCLUSION.

IN taking leave of those who have favoured me with a hearing through the foregoing pages, I feel that I can render them no more acceptable service, than by introducing still another extract from the writings of the Edinburgh philanthropist.

It is very well known that Professor Meigs, of this city, addressed a letter to Professor Simpson, of Edinburgh, containing a series of objections to the use of anæsthetics, particularly in cases of midwifery. They were objections, well drawn up, and manfully and fearlessly expressed. I say this is well known. It is much better known than the fact that Professor Simpson has, in the most able and satisfactory manner, answered and met these objections. Not that Professor Meigs would by any means desire any undue advantage in controversy, but such has been the case as a matter of course, and entirely beyond the Doctor's control. Prejudiced men have used and circulated freely the objections of Prof. M., while the answers of Prof. S. have been in many instances suppressed. On the other hand, the reply of Professor Simpson is so written, that every reader is at once put in possession, not only of the nature of the objections, but the very forcible language in which those objections have been made, is in all respects submitted for the candid consideration of his readers.

The first objection urged by Professor Meigs is in reference to the use of forceps, requiring the *answer* of his patient to assist him in his diagnosis. This is shown by Professor Simpson to be in reality no objection at all, and he very ingeniously quotes from Professor Meigs himself to sustain his position throughout his entire reply. But allowing this objection to be perfectly valid, it appears to me that a vast amount of suffering might be saved if etherization should be suspended for this express purpose, and renewed to complete the delivery.

It has elsewhere been stated that no life has been lost as the result of ether inhalation by parturient women; and that statistics go to show a great percentage of human life saved by this agent under these circumstances. Is it not our duty to act according to light furnished in this matter? If an additional chance is proved to exist, in the use of ether, to the well-doing of lying-in women, should we not avail ourselves of that chance? Dr. M. says: "Should I exhibit the remedy for pain to a thousand patients in labour, merely to prevent the physiological pain, and for no other motive, and if I should, in consequence, destroy only one of them, I should feel disposed to clothe me in sackcloth and cast ashes on my head for the remainder of my days."

Now, in connection with this subject, I feel constrained to inquire,—Have even our most eminent obstetricians been so singularly successful in their practice as never to have lost patients, whom some other mode of treatment than that, in their wisdom, adopted at the time, might have saved? Have any of the opponents

of anæsthesia, within the last four years, not lost patients whom *ether* might have saved? If such is the fact, and had *prejudice* been the motive which debarred its use, what should be *their* substitutes for “sackcloth and ashes” in the case?

I will proceed to complete the paragraph of Professor Meigs, together with its reply: — “What sufficient motive have I to risk the life or the death of one in a thousand in a questionable attempt to abrogate one of the general conditions of man?” — “Let me add,” says Simpson, “that I have seen this argument of yours already repeated from your letter, and strongly insisted upon by the opponents of anæsthesia in this country.”

“And, indeed, in a new practice such as that of anæsthesia, and with which the mind is yet not at all familiarized, the above forms one of that kind of apparently strong statements, which it is impossible to answer directly, or, indeed, by any other way than by taking, as I have already said, a corresponding illustration and simile from some other matter with which the mind is already familiarized. Let us, for a moment longer, then, adhere to the familiar comparison which I have already taken up, under the last head, between the physiological function of human parturition, and the physiological function of human progression. Suppose, then, that you and I were standing at the Philadelphia station on the first day of the opening of the railway to Baltimore or New York. I wish the passengers to Baltimore or New York, or the shorter and intermediate stations, to proceed thither by railway; but you argue with them, like President Jefferson, that ‘progression’ is the culminating point of the human

somatic forces,' and that 'walking is a desirable, salutary, and conservative manifestation of life-force,' and that progression being a 'physiological function,' and fatigue a physiological pain, they ought to proceed on foot. I say 'No. Place yourself in a railway carriage, and thus eschew and obviate all the great fatigue and useless over-exertion of foot travelling.' Then comes that answer and argument of yours which I have quoted, and which runs as follows: 'But, should I exhibit, sir, the remedy for fatigue (*a railway carriage*) to a thousand travellers, merely to prevent the physiological exertion and fatigue of walking, and for no other motive, and if I should, in consequence, destroy only one of them, I should feel disposed to clothe me in sackcloth and cast ashes on my head for the remainder of my days. What sufficient motive have I to risk the death of one in a thousand in a questionable attempt to abrogate one of the general conditions of man, viz., his power of progression by walking?'

"I shall not stop to inquire whether among our supposed lady passengers or patients (uninured, as most of them are, either to long pain or long walking), more than one in a thousand would not be worn out and destroyed by taking the journey on foot. A less proportion, I believe, would be found to be ultimately destroyed by the perils and dangers of the journey by railway than by the exertion and fatigue of the journey on foot, and the walk would shake and damage, both temporarily and permanently, many more constitutions than the railway carriage. I have a firm conviction that, on the great scale, there would be found a more absolute saving, both of human life and of human health, by adopt-

ing the means invented by art than the means provided by nature; and I most firmly believe that yet a similar difference will be found to hold good between the two corresponding practices of allowing women to pass through labour afflicted with all their usual physiological 'pangs and agonies,' and carrying them through that process without their being subjected to the endurance of these pangs and agonies.

"But I proceed to remark, that if your supposed theory with regard to the functions of parturition were carried out, in regard to the other functions of the human body, it would produce a vast and mighty revolution in the practices of civilized life. Follow it out, for instance, with regard to any one of them, as, for example, with regard to the one we have already spoken of, viz., progression, and see what would be the results. Ever and anon our newspapers contain paragraphs, telling us of one or more human lives being lost by collisions on railways, explosions of steamboats, upsettings of stage-coaches, &c. Consequently, according to your doctrine, the featherless biped pedestrian, man, should no longer, when travelling, fly in railway cars, ply in steamboats, ride in coaches, &c., for these are evidently all so many questionable attempts to abrogate what you call 'one of the general conditions of man, viz., his original pedestrianism.'

"In the great government and police of nature, disease and death are among the most certain 'general conditions of man.' If your theory were true, the practice of medicine itself should, I fear, be at once and summarily abandoned, for perhaps, in your own language, it is, at best, a questionable attempt to abrogate

one of the general conditions of man, and I am sure you will agree with me, that in this 'questionable attempt,' human lives are often lost from the mistakes, or the passiveness, or the want of knowledge and skill on the part of the physician. In England and Wales, in 1840, there were, according to the returns of the Registrar-General, above 100 persons publicly and officially reported as having died from the effects of one drug alone, opium. But would this be any reason, or any ground of reason, for abandoning in medicine the use of opium, perhaps, in itself, the most valuable of all the remedies in our pharmacopœia? Would this be any adequate argument for refusing to relieve, by a dose of opium, the next appropriate case of pain that you are called to? Or because chloroform or ether, in a very rare case, now and again produces deleterious or even fatal consequences, should we refuse, in a thousand other persons, to mitigate and annul their agonies by its use?

"In your esteemed letter to me, you quote some remarks from the celebrated old work, 'Raynald's Birth of Mankind,' the first book on Midwifery printed in English. Look at the prologue to this work. It is excellent in reference to the very matter we are discussing, viz., whether the rare accidents, from abuse or otherwise, to which any good gift may occasionally subject those who use it, should be a reason for repudiating the general use of that gift. 'There is not anything,' says Raynald, 'so absolute and perfect, but by the occasion of the abuse thereof at one time or other, may and doth ensue greate damage and danger to mankind.' He instances fire and water, 'two righte necessary ele-

ments to the use of man, without the which he could not live,' yet sometimes 'by fire hath bin consumed and devoured whole cities and countries; by water swallowed and drowned infinite men, shippes, yea, and whole regions. Againe,' he continueth, 'meate and drinke, to the moderate users thereof, doth minister and maintain life; and contrary to the unmeasurable and unsatiate gourmands and gluttons, it hath full many times brought surfeit, sicknesse, and at the last, death. . . . But,' he argues, 'should men, for the avoyding of the aforesaid inconveniences, and for the reasons above said, condemne and banish fire and water, or forsake their meate and drinke? No, *it were but madnesse once to think of it.*'

"Before passing from these, your supposed dangers of anæsthetics, let me add two remarks: 1st, I do believe that if improperly and incautiously given, and in some rare idiosyncrasies, ether and chloroform may prove injurious or even fatal, just as opium, calomel, antimony, and every other strong remedy and powerful drug will occasionally do. Drinking cold water itself will sometimes produce death. 'It is well known,' says Dr. Taylor, in his excellent work on Medical Jurisprudence, 'it is well known that there are MANY cases on record, in which cold water, swallowed in large quantity, and in an excited state of the system, has led to the destruction of life.' (p. 8.) Should we, therefore, never allay our thirst with cold water? What would the disciples of Father Mathew say to this? But 2dly, you and others have very unnecessary and aggravated fears about the dangers of ether and chloroform, and in the course of experience you will find these fears to be, in

a great measure, perfectly ideal and imaginary. But the same fears have, in the first instance, been conjured up against almost all other innovations in medicine, and in the common luxuries of life. Revert again to our old simile regarding travelling. Cavendish, the secretary to Cardinal Wolsey, tells us, in his *Life of that prelate*, that when the Cardinal was banished from London to York, by his master, that regal Robespierre, Henry VIII., *many* of the Cardinal's servants refused to go such an enormous journey, for they were (says Cavendish) 'loath to abandon their native country, their parents, wives, and children.' The journey, which can *now* be accomplished in six hours, was considered *then* a perfect banishment. We travel now between London and Edinburgh (some four hundred miles), in twelve or fourteen hours. A century ago, the stage-coach took twelve or fourteen days. And in his *Life of Lord Loughborough*, Lord John Campbell tells us that when he (the biographer) first travelled from Edinburgh to London, in the mail coach, the time was reduced to three nights and two days; 'but,' he adds, 'this new and swift travelling from the Scotch to the English capital was wonderful, and I was gravely advised, adds Lord John, 'to stop a day at York, as several passengers, who had gone through without stopping, had died of apoplexy from the rapidity of the motion.'—(*Lives of the Lord Chancellors*.)

"Be assured that many of the cases of apoplexy, &c., &c., alleged to arise from ether and chloroform, have as veritable an etiology as this apoplexy from rapid locomotion, and that, a few years hence, they will stand in the same light in which we now look back upon the

apoplexy from travelling ten miles an hour. And as to the supposed great moral and physical evils and injuries arising from the use of ether and chloroform, they will by and by sound, I believe, much in the same way as the supposed great moral and physical evils and injuries arising from using hackney coaches at all, were seriously described by Taylor, the water poet, two or three centuries ago, when these coaches were first introduced. In his diatribe against hackney coaches, Taylor warned his fellow-creatures to avoid them, otherwise, to quote his own words, 'they would find their bodies tossed, tumbled, rumbled, and jumbled without mercy.' 'The coach,' says he, 'is a close hypocrite, for it hath a cover for knavery; they (the passengers) are carried back to back in it like people surprised by pirates; and moreover, it maketh men imitate sea-crabs in being drawn sideways, and altogether, it is a dangerous carriage for the commonwealth.' Then he proceeds to call them 'hell-carts,' &c., and vents upon them a great deal of other abuse, very much of the same kind and character as that lavished against anæsthetics in our own day."

THE END.



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